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CHAPTER XIX.

GUN CONSTRUCTION.

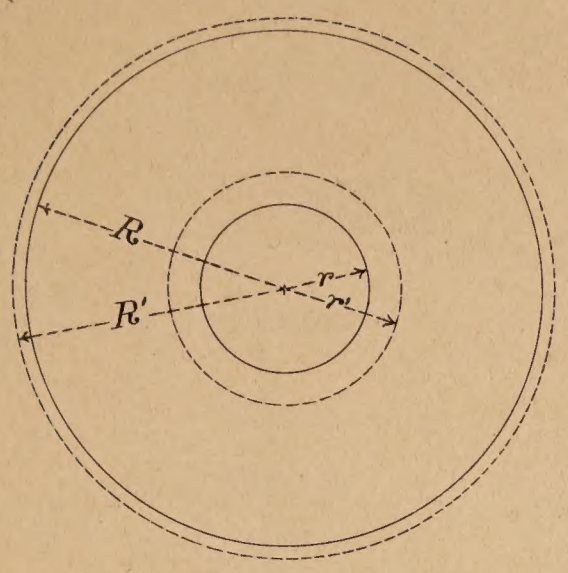

Fig. 1. External and Internal Strain.

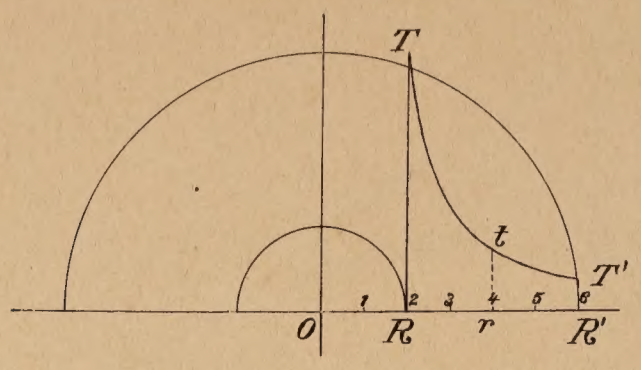

Fig. 2. Distribution of Stresses

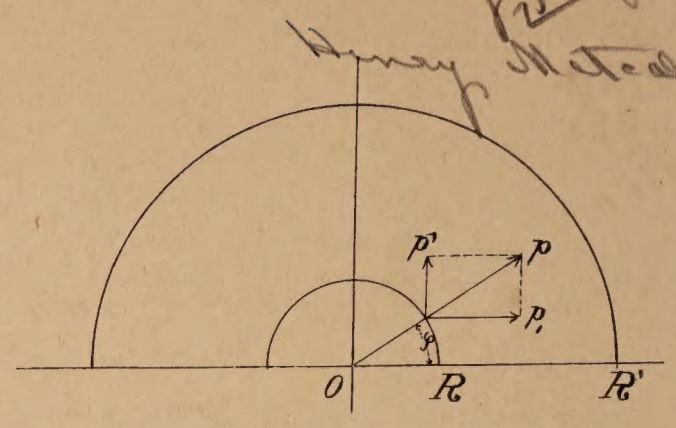

Fig. 3. Decomposition of Pressures

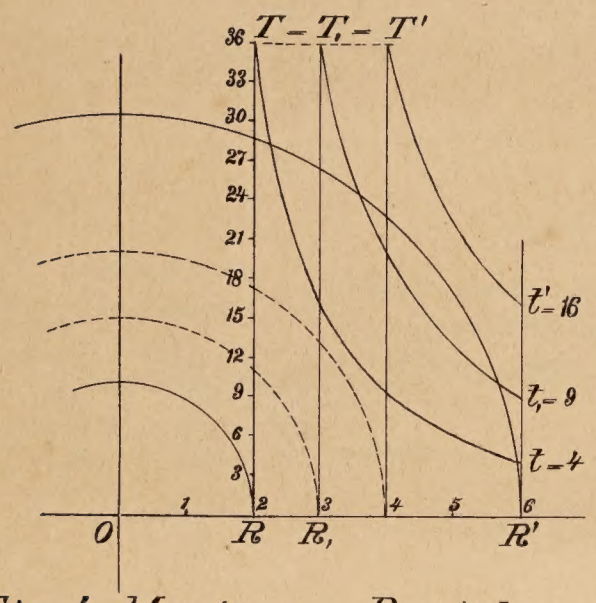

Fig. 4. Maximum Resistance.

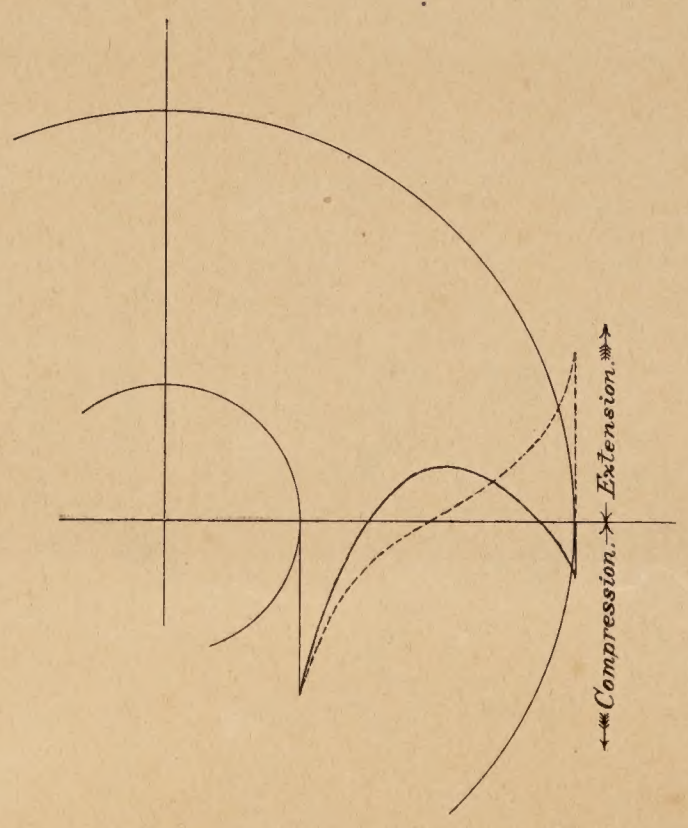

Fig. 5. Rodman's Method.

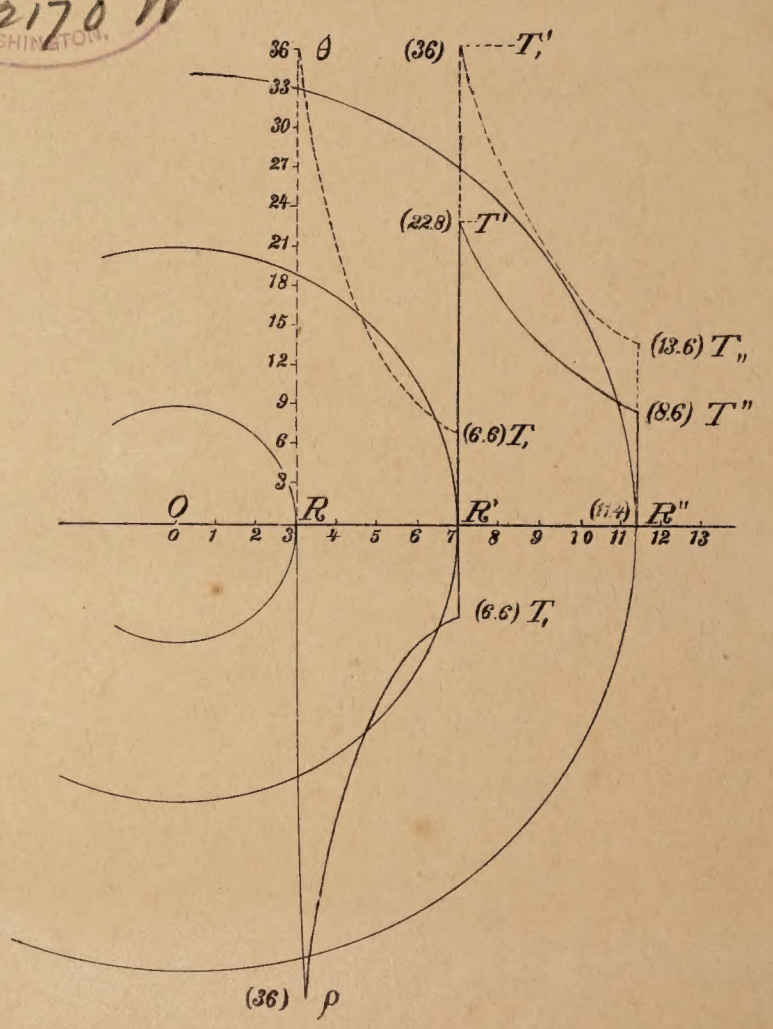

Fig. 6. Initial Tension and Firing Stresses. (Thickness of tube arbitrary)

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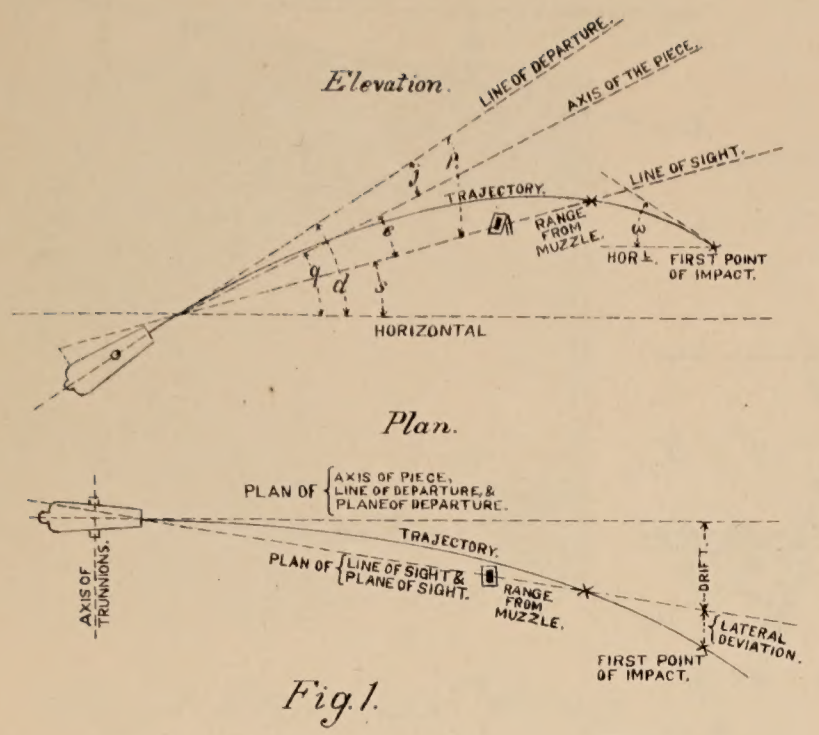
CHAPTER XX.

EXTERIOR BALLISTICS.



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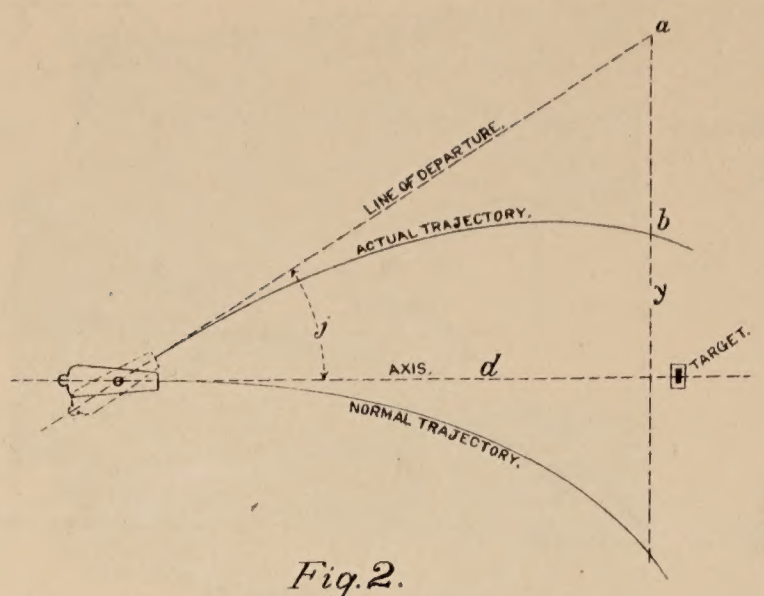

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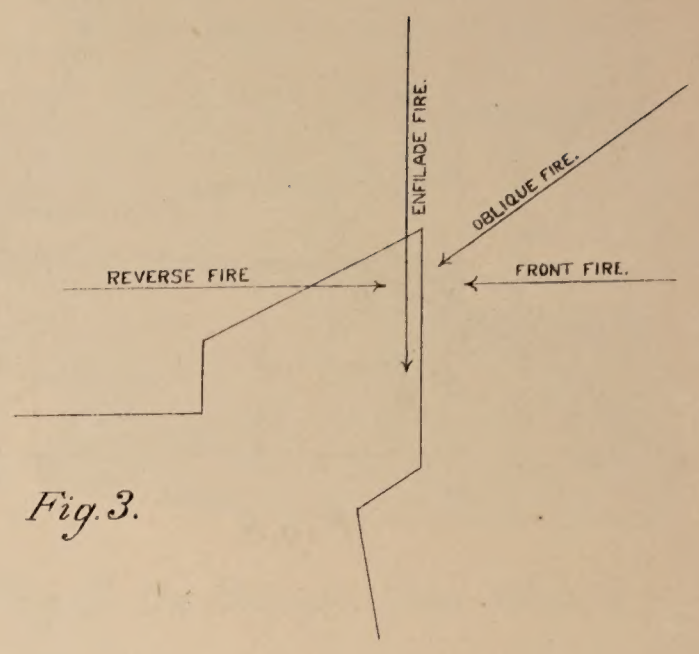

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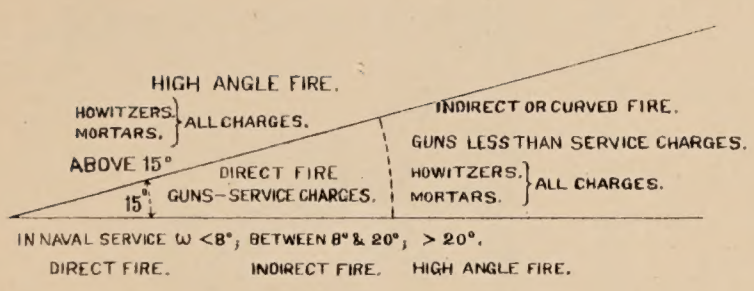

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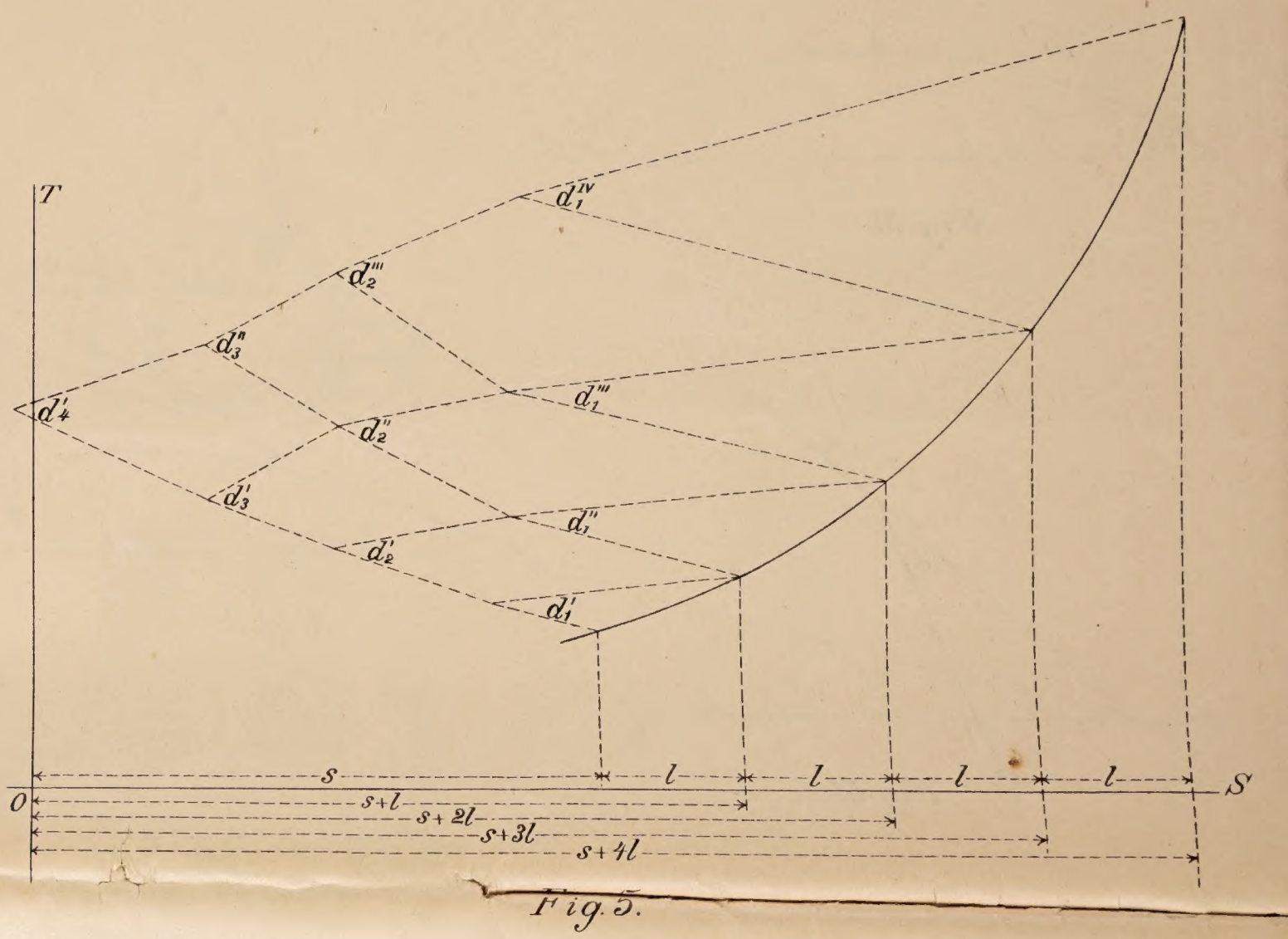

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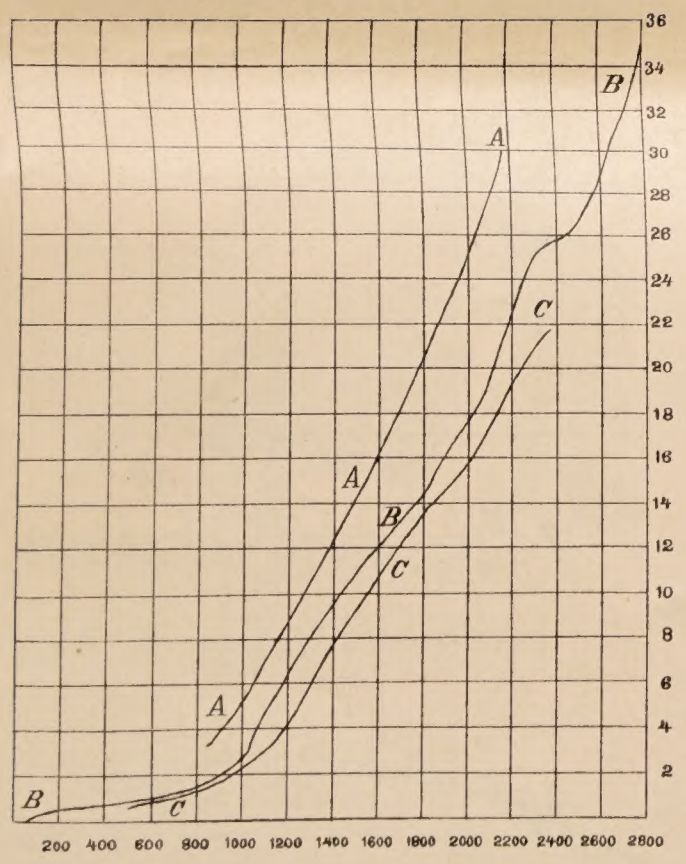

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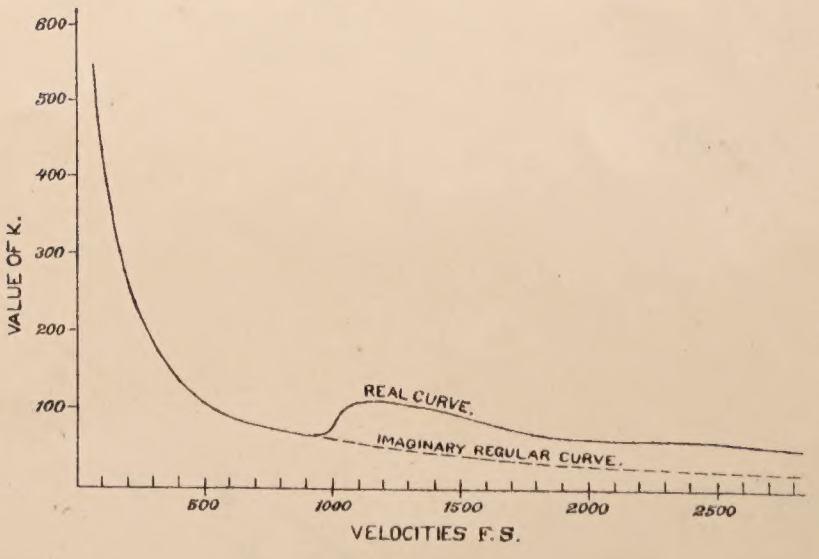
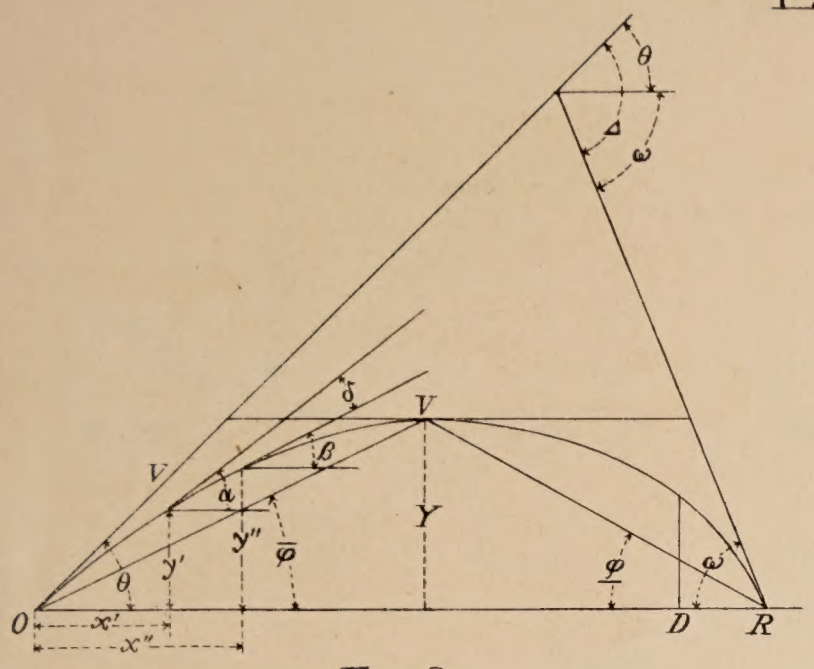


Fig. 6.

CHAPTER XX.

EXTERIOR BALLISTICS.



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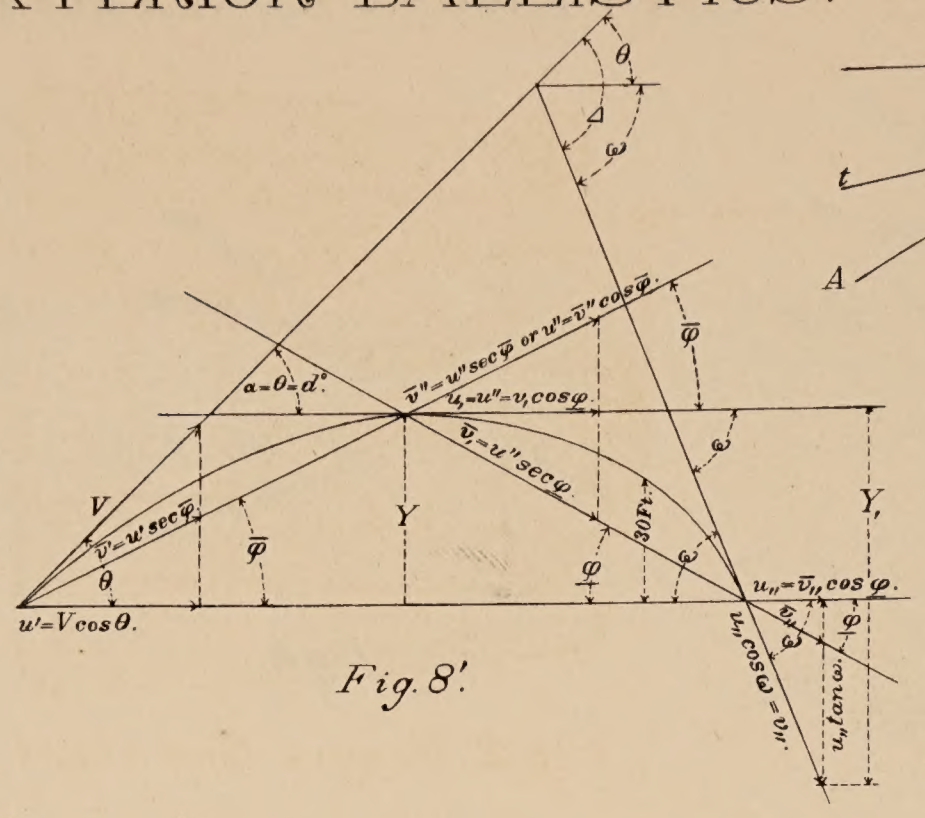

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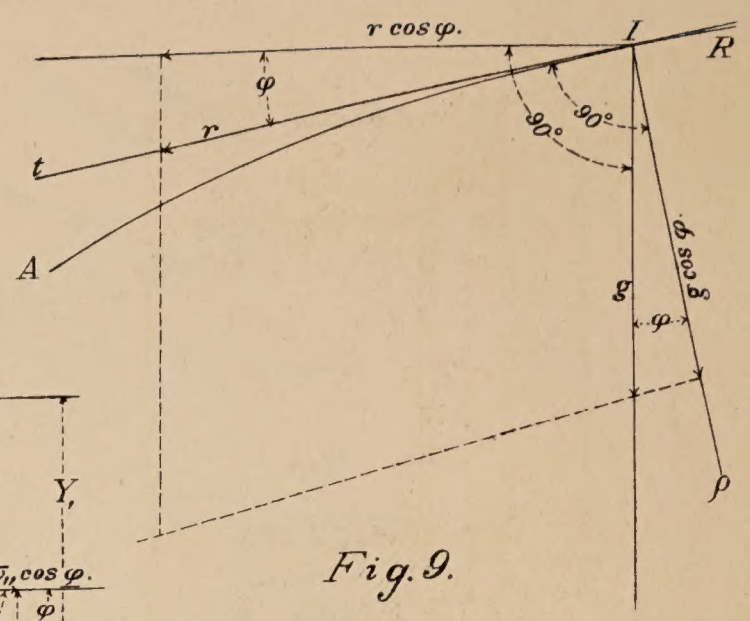

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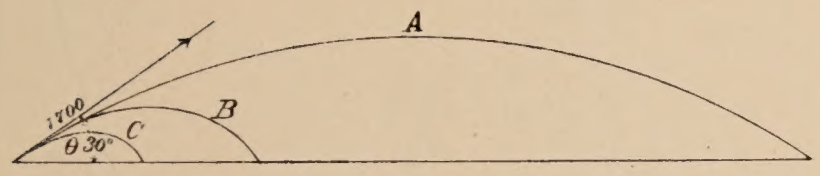

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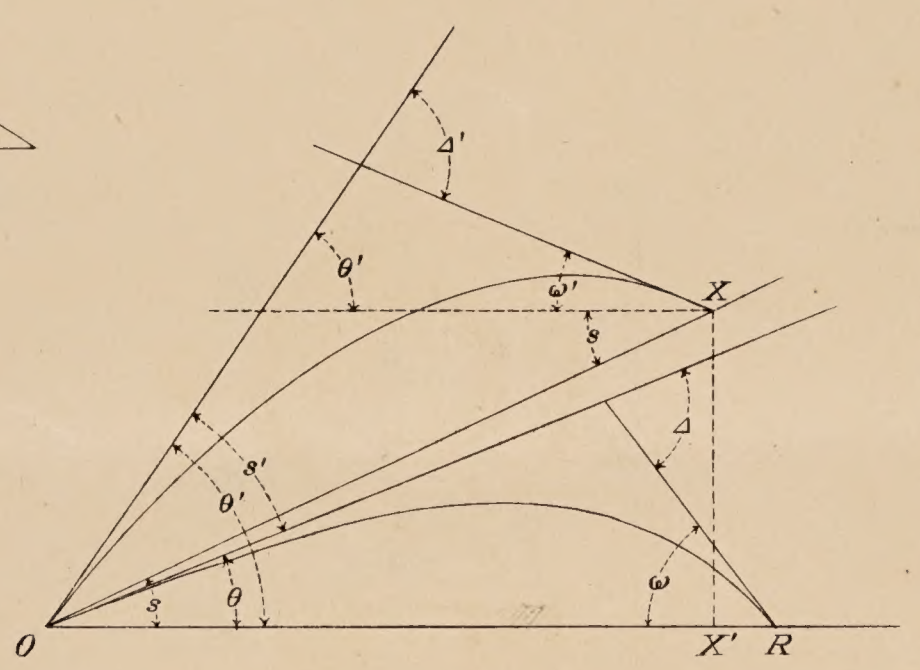

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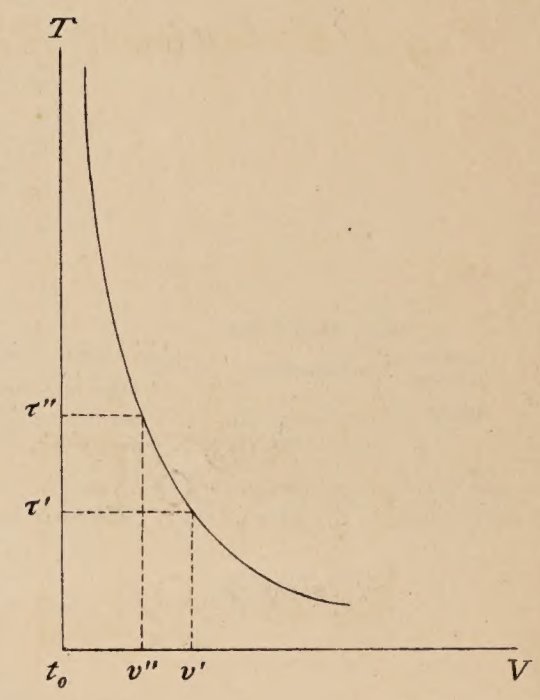

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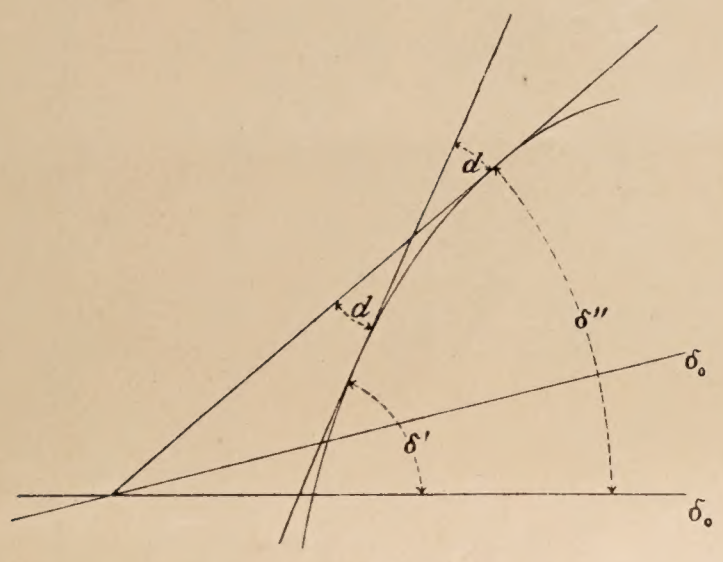

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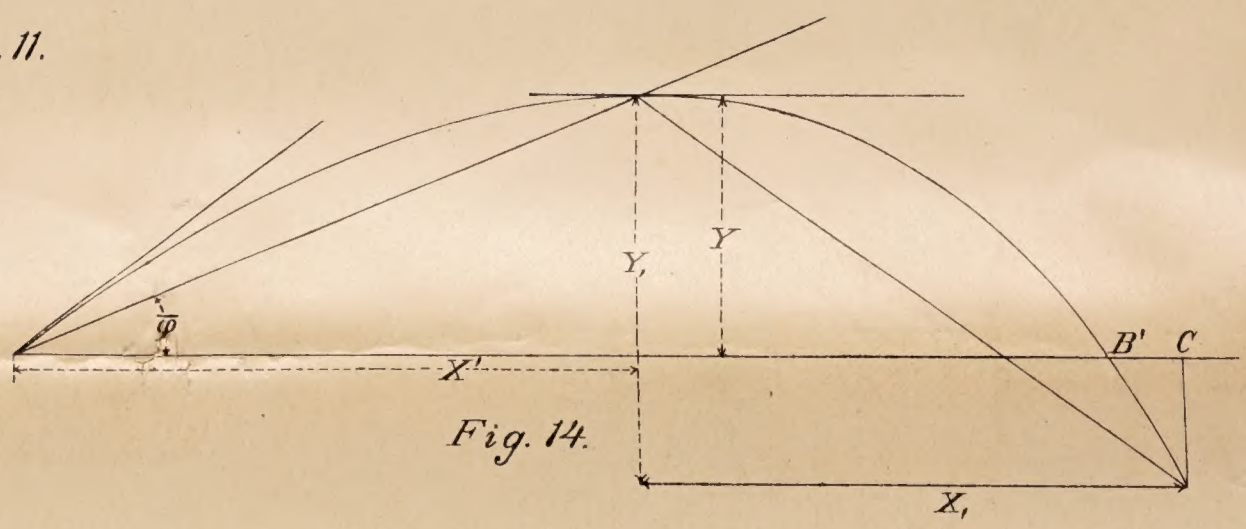
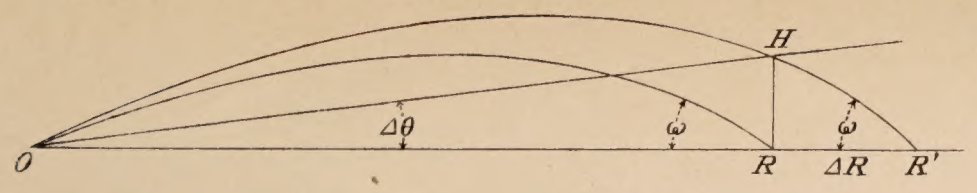


Fig. 14.



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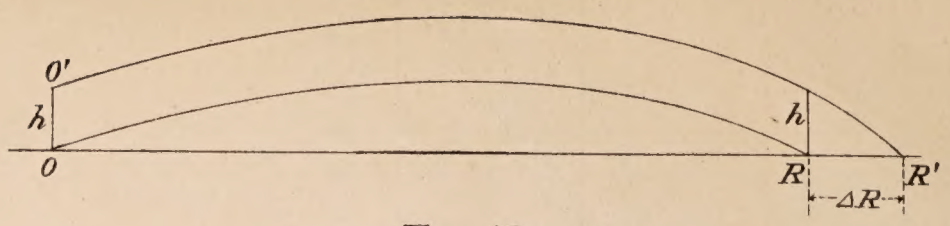

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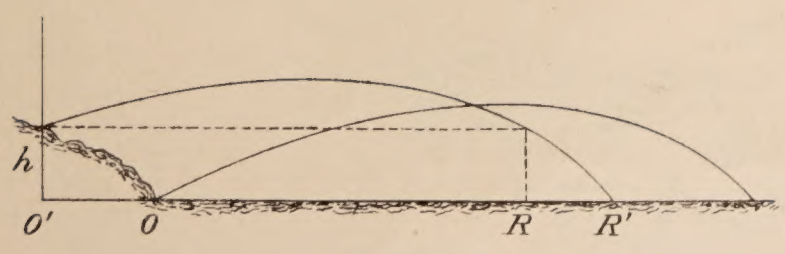

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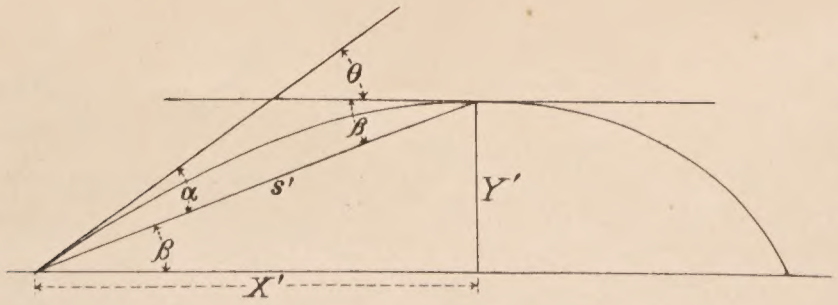

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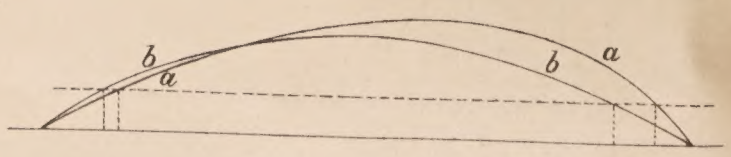


Fig. 19.

CHAPTER XXI.

VARIETIES OF CANNON.

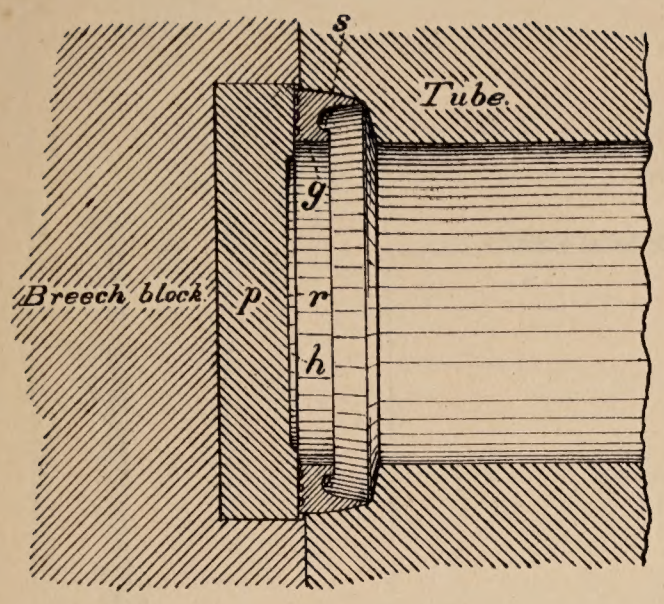


Fig. 1. Broadwell Ring.

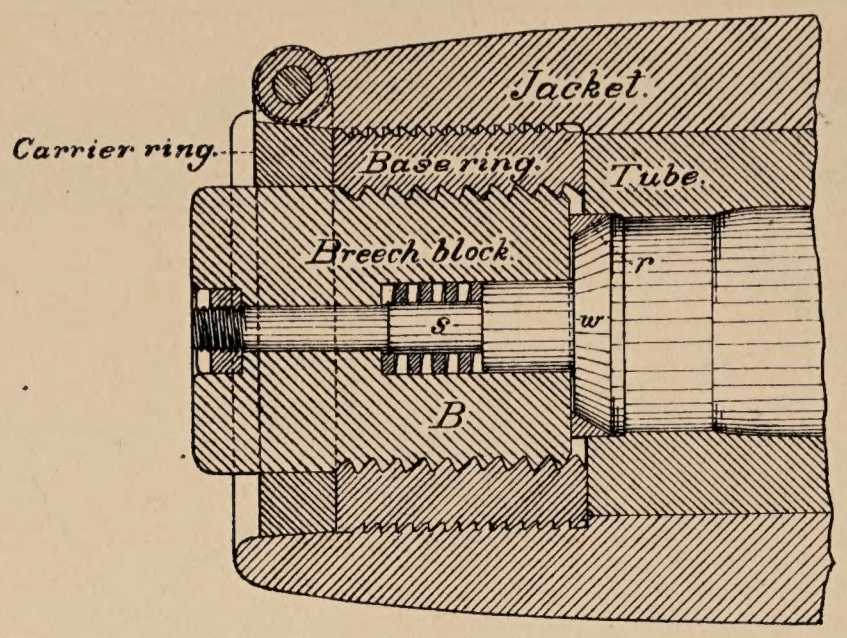


Fig. 2. Freyre Gas-check.

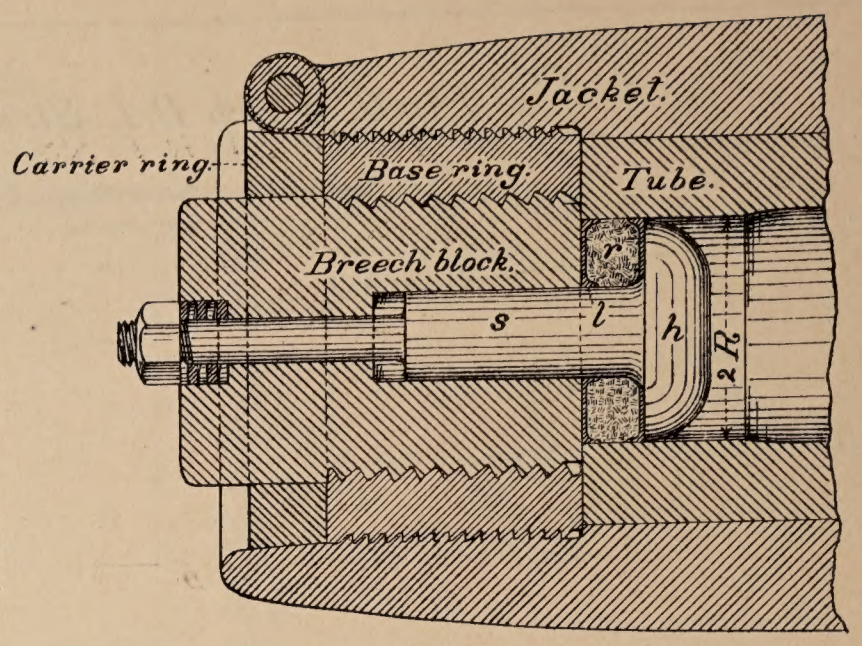


Fig. 3. De Bange Gas-check.

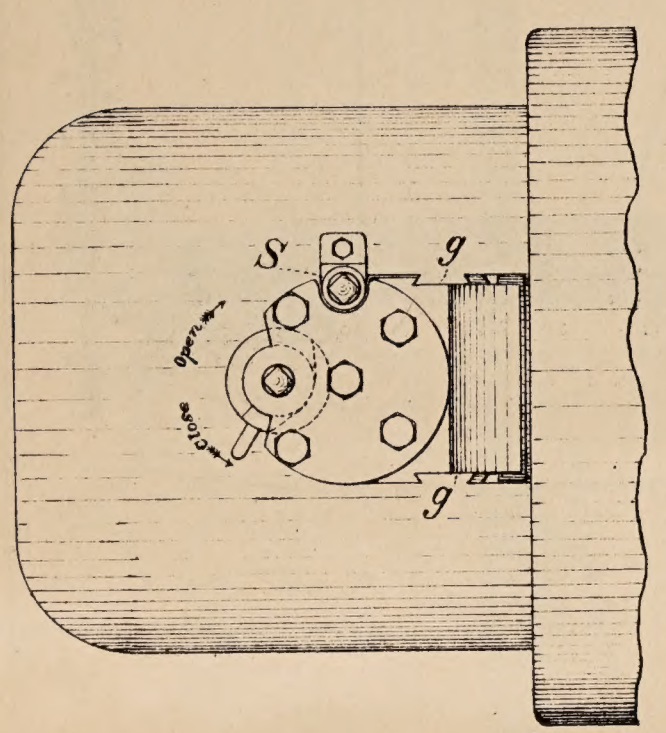


Fig. 4. Krupp Fermature.

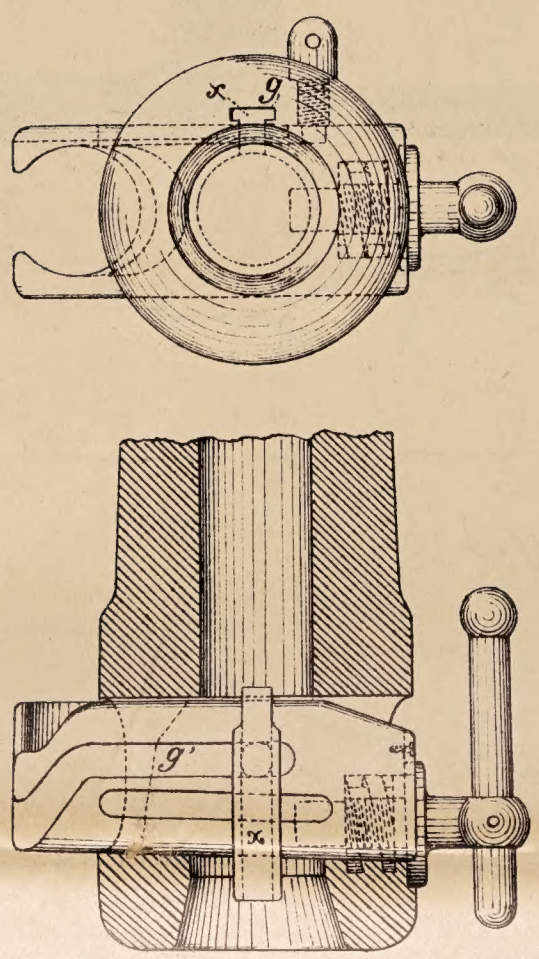


Fig. 5. Hotchkiss Mountain Gun.

Fig. 9. 12 inch B.L. Mortar. Rifled.

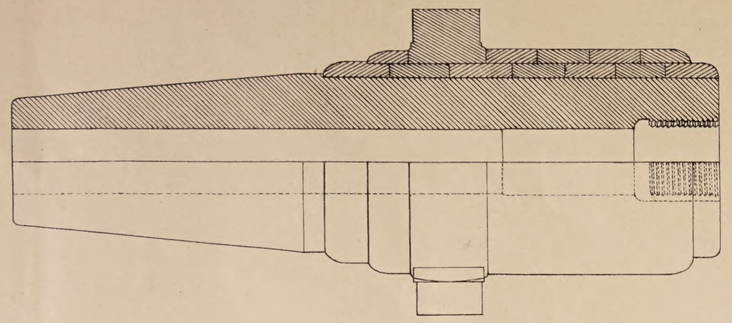


Fig. 8. 7 inch B.L. Steel Siege Howitzer.

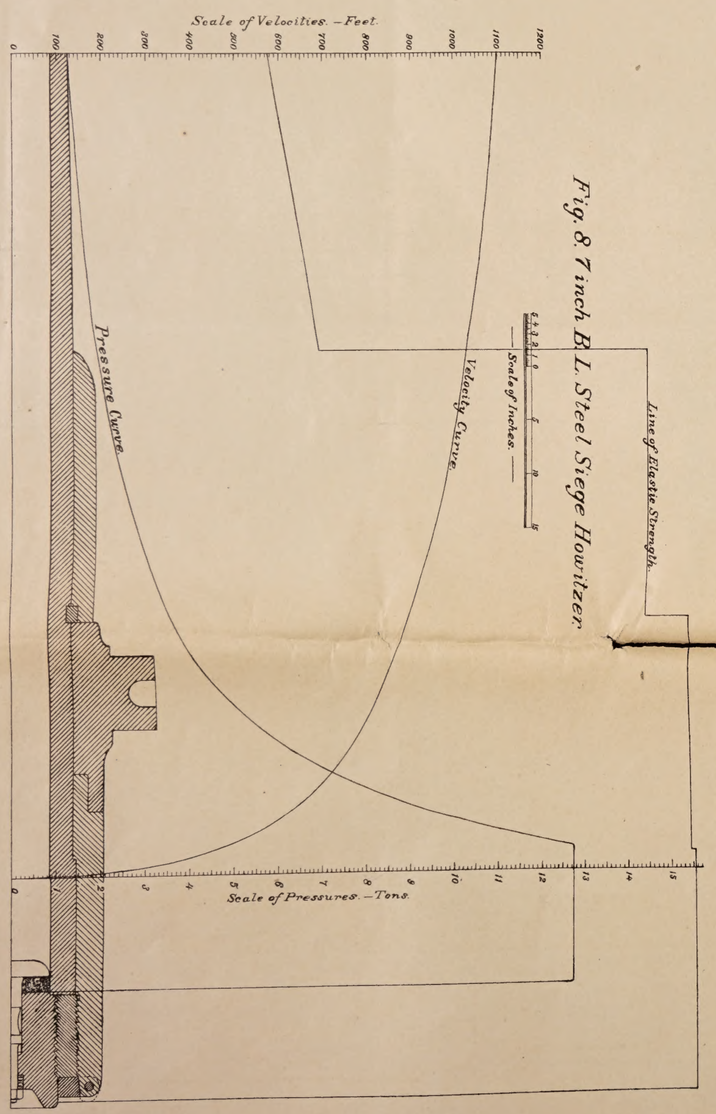
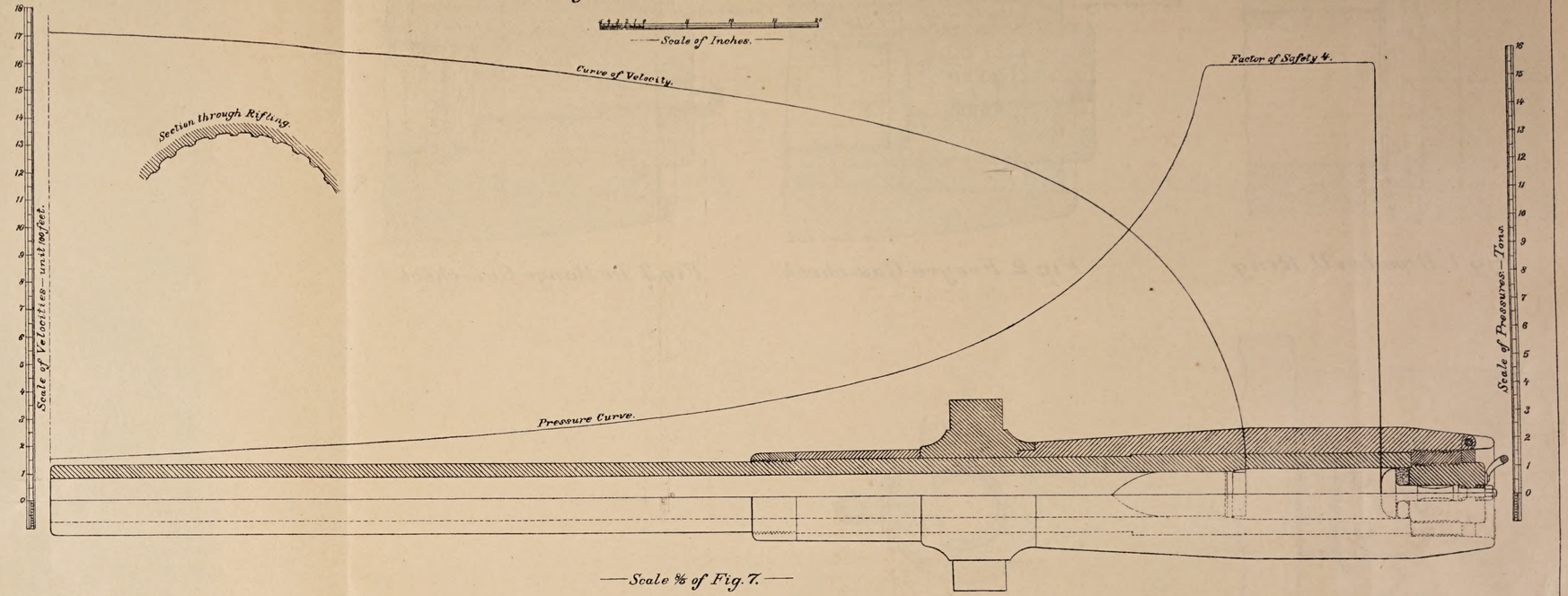
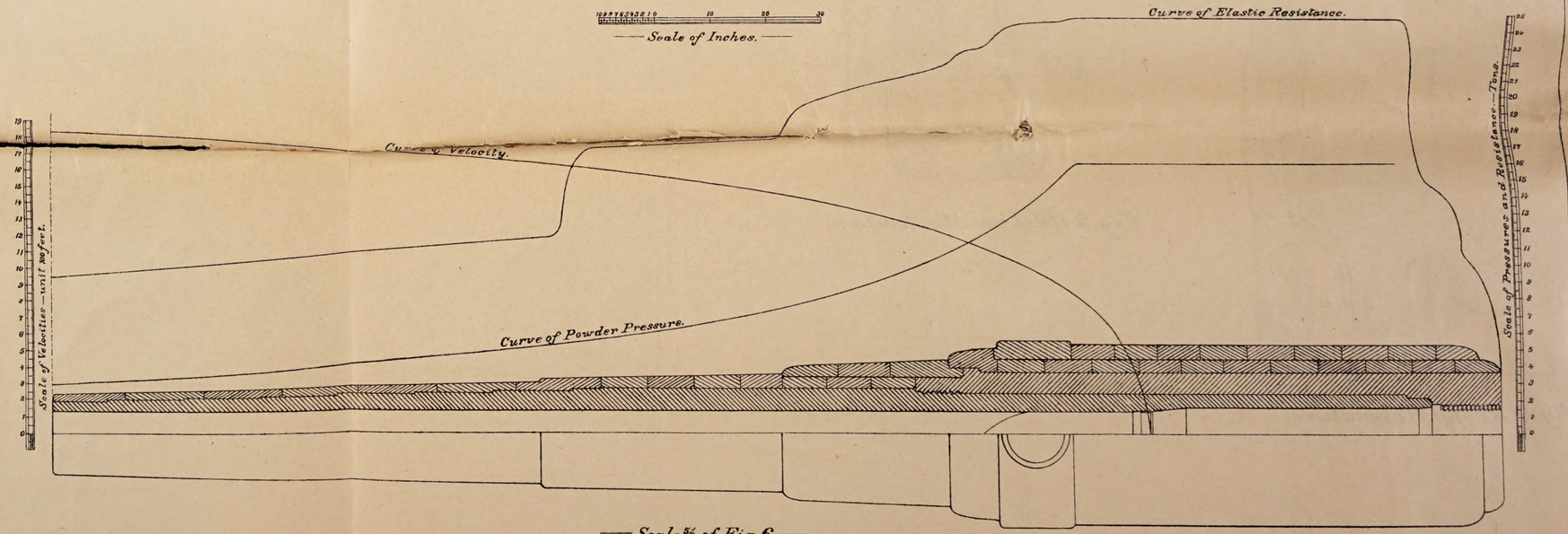


Fig. 6. 5 inch B.L. Steel Rifle.



—Scale ⅝ of Fig. 7.—

Fig. 7. 8 inch B.L. Steel Rifle.


Scale of Inches.
Curve of Elastic Resistance.
Curve of Velocity.
Curve of Powder Pressure.
Scale of Velocities — unit 100 feet.
Scale of Pressures and Resistance — Tons.

—Scale ⅝ of Fig. 6.—

CHAPTER XXII.

PRINCIPLES OF GUN CARRIAGES.

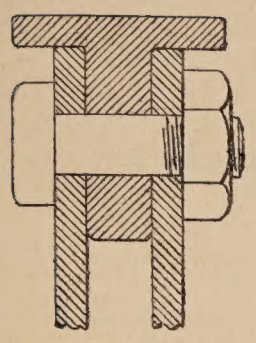


Fig. 1. Cheek of Iron Carriage.

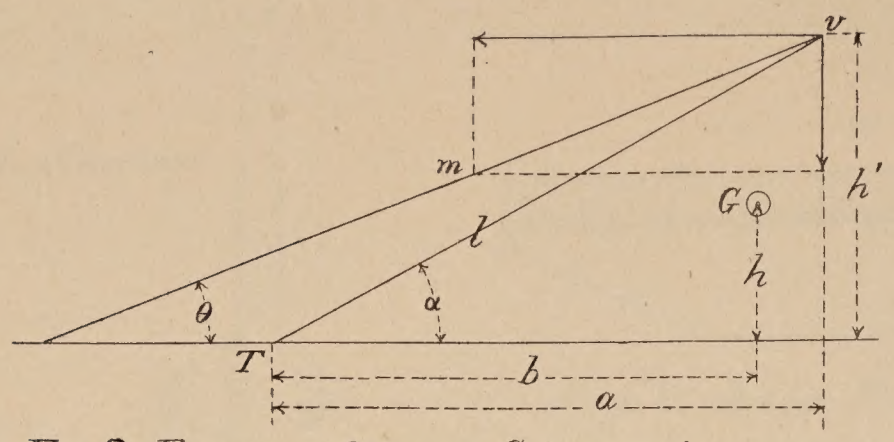


Fig. 2. Forces acting on Gun carriage.

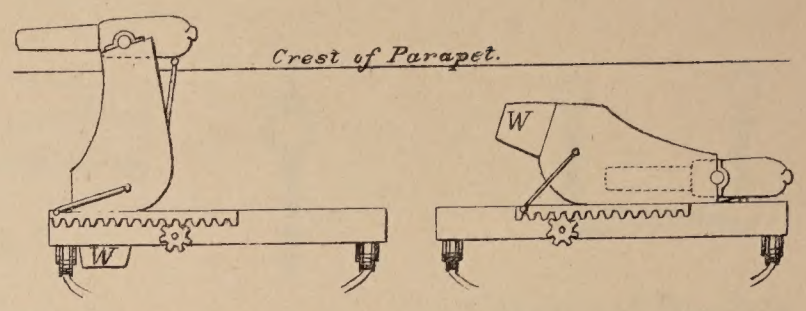


Fig. 3. Moncrief Carriage.

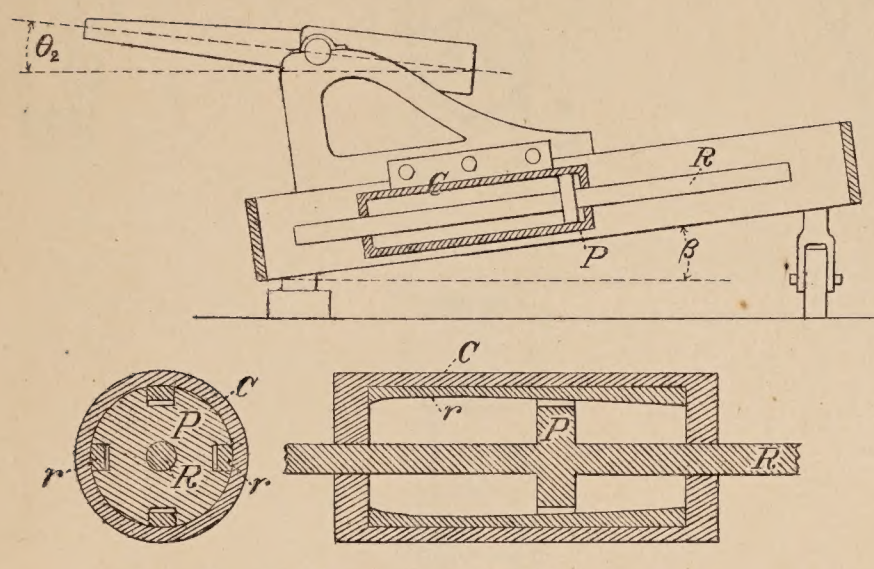


Fig. 4. Hydraulic Buffer.

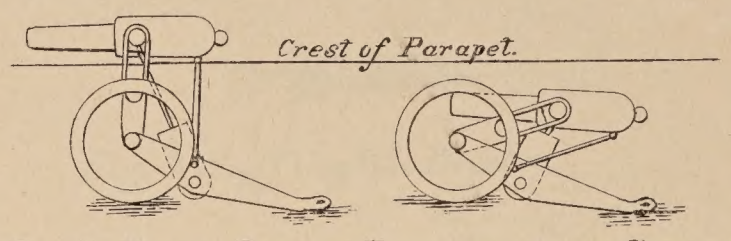


Fig. 5. Siege Gun on Disappearing Carriage.

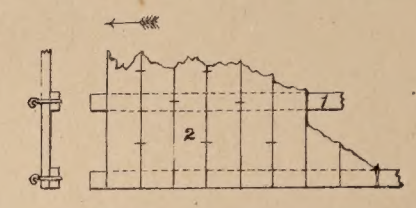


Fig. 7. Platforms.

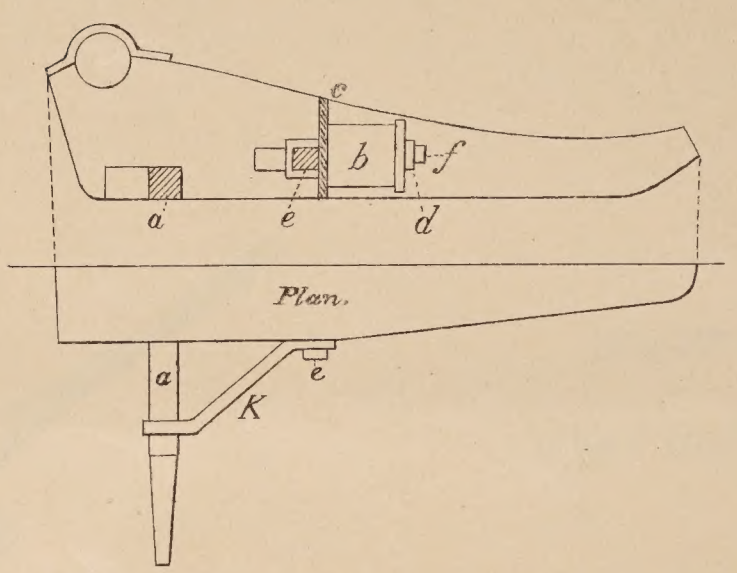


Fig. 6. Engelhardt "Deformation" Carriage.

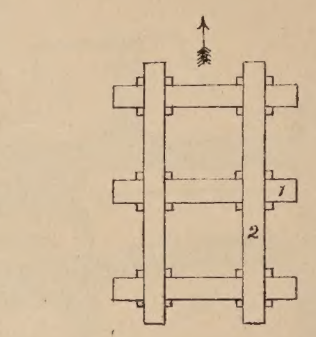


Fig. 7. Rail Platform.

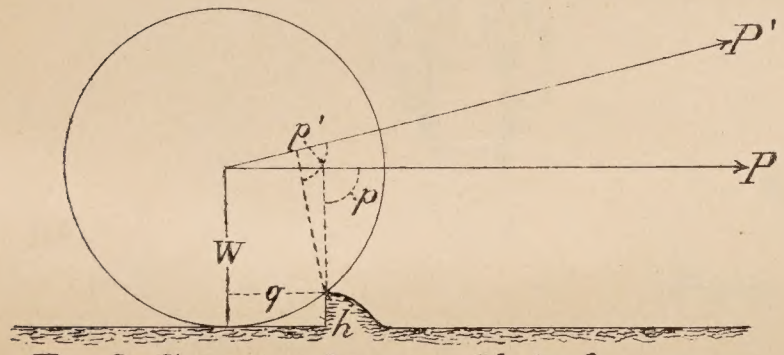
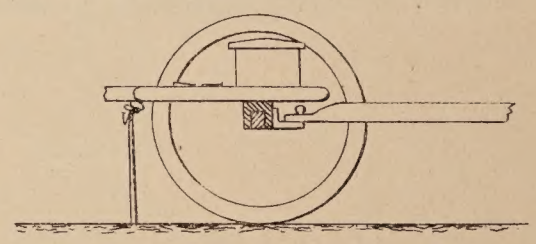


Fig. 8. Surmounting an Obstacle.



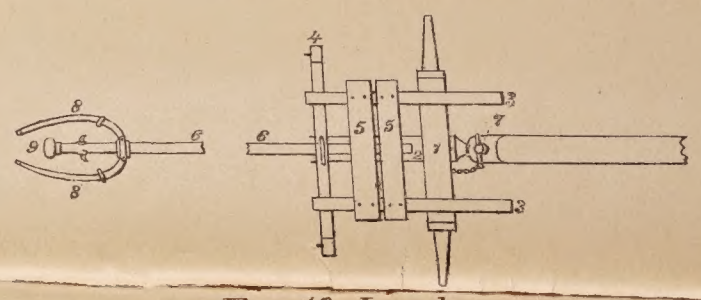


Fig. 10. Limber.

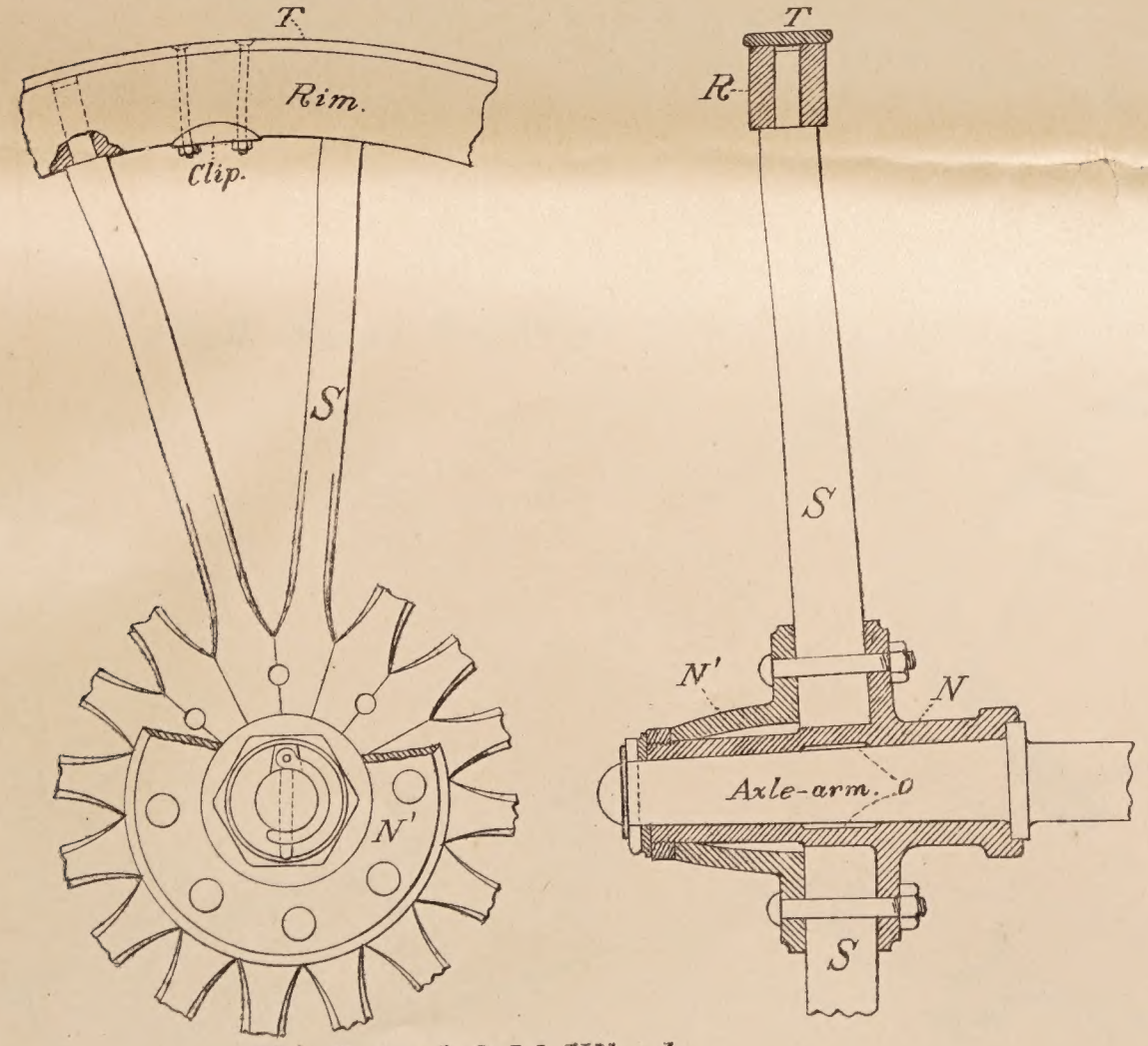


Fig. 9. Archibold Wheel.

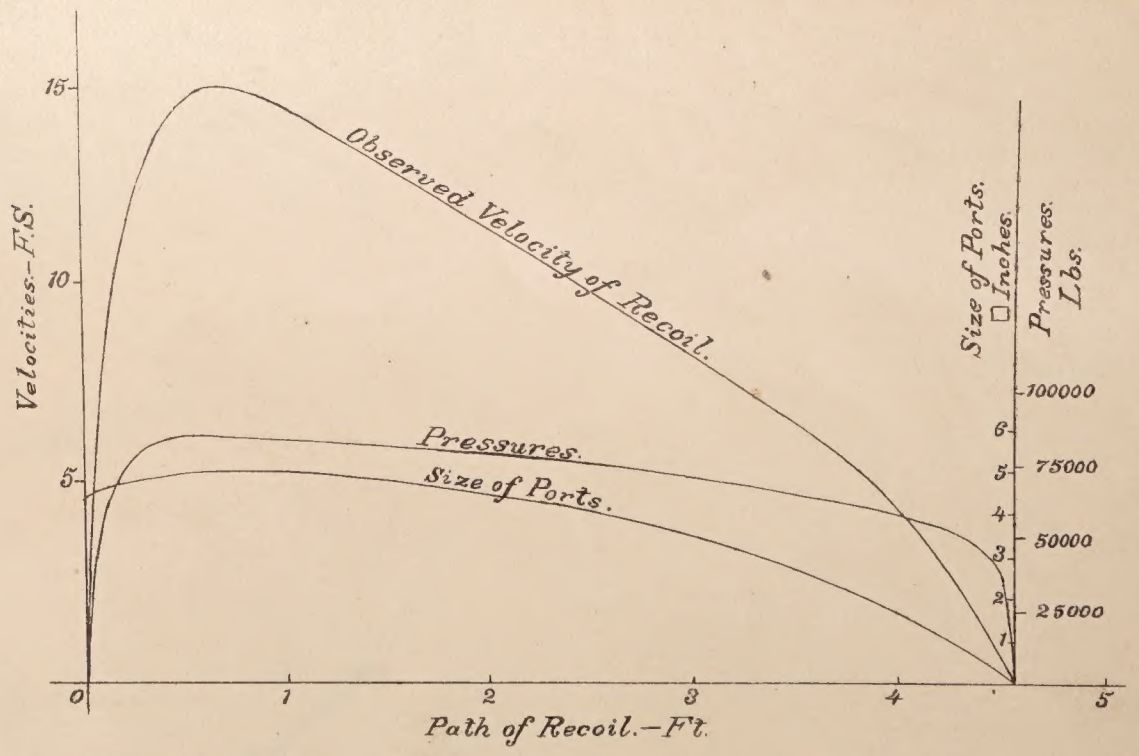


Fig. 11. Observations on Recoil of 3.6 inch Rifle.

CHAPTER XXIII.

VARIOUS ARTILLERY CARRIAGES.

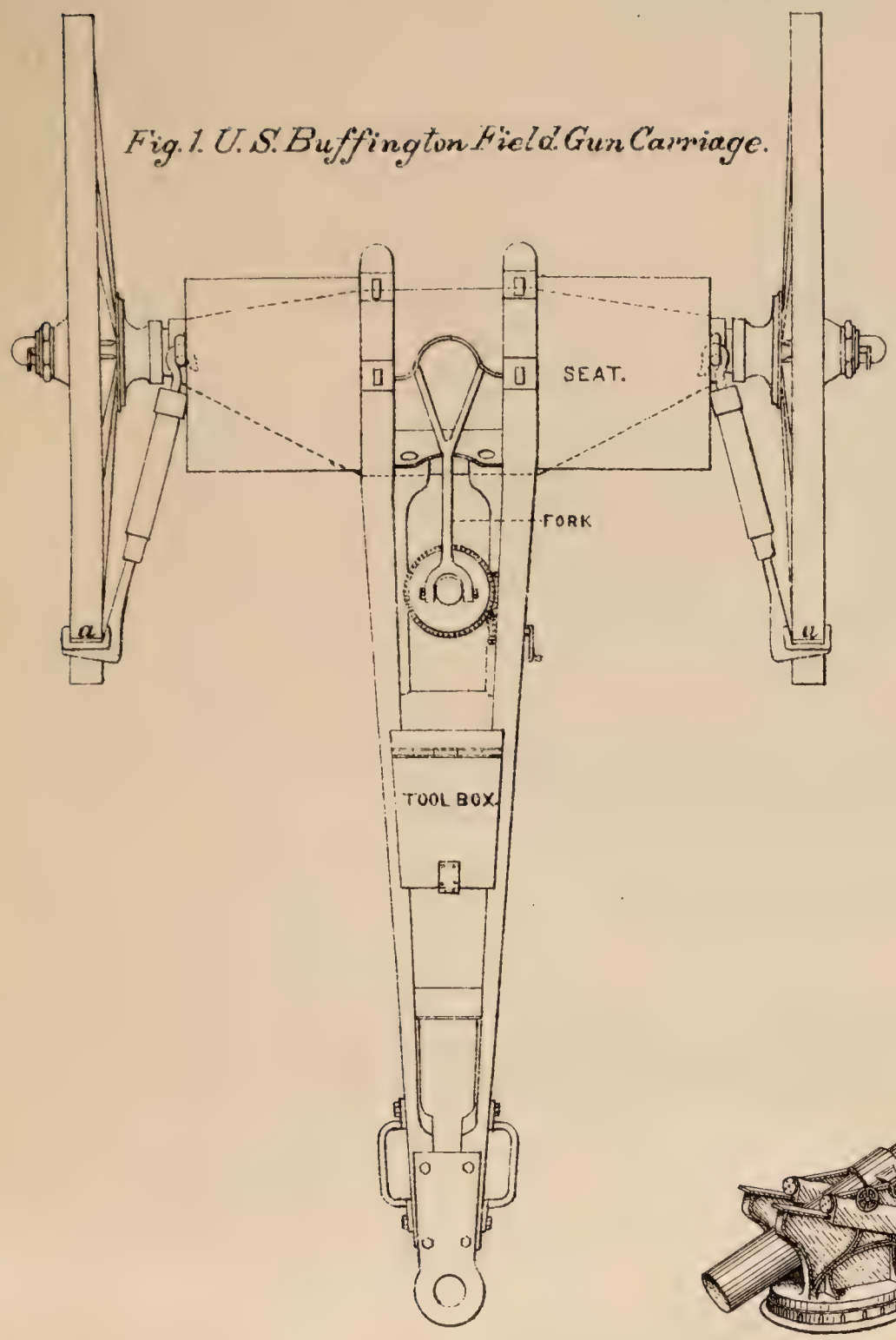


Fig. 1. U. S. Buffington Field Gun Carriage.

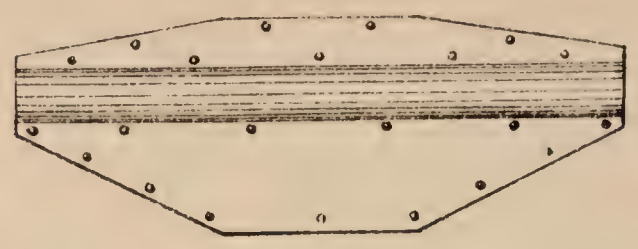


Fig. 2. Axle Plate.

Fig. 3. Section of Brackets.

Fig. 4. Buffington Brake.

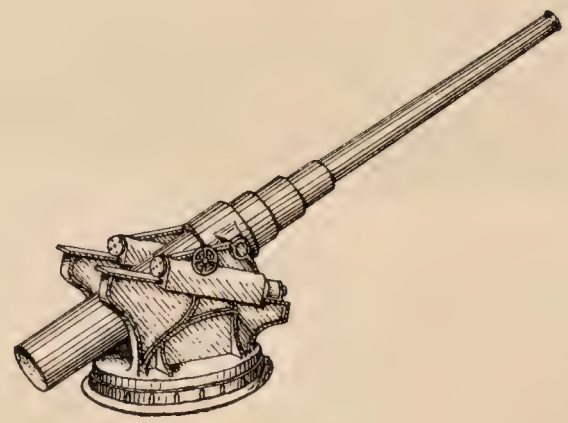


Fig. 8. 42 Cal. 5 Inch Gun.

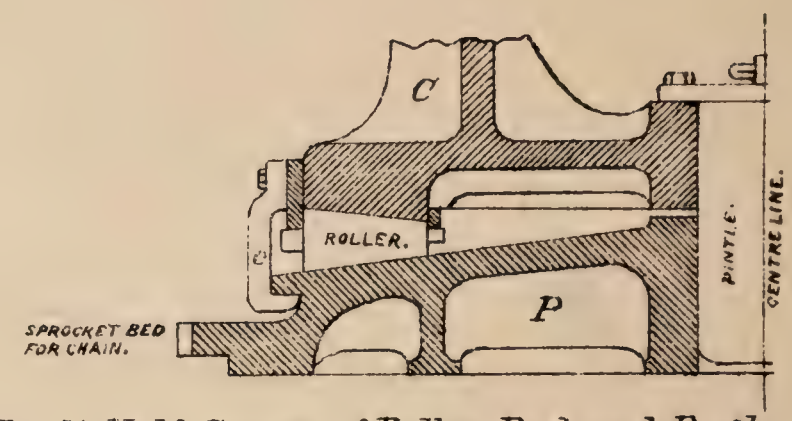


Fig. 7. Half Section of Roller, Path, and Pintle.

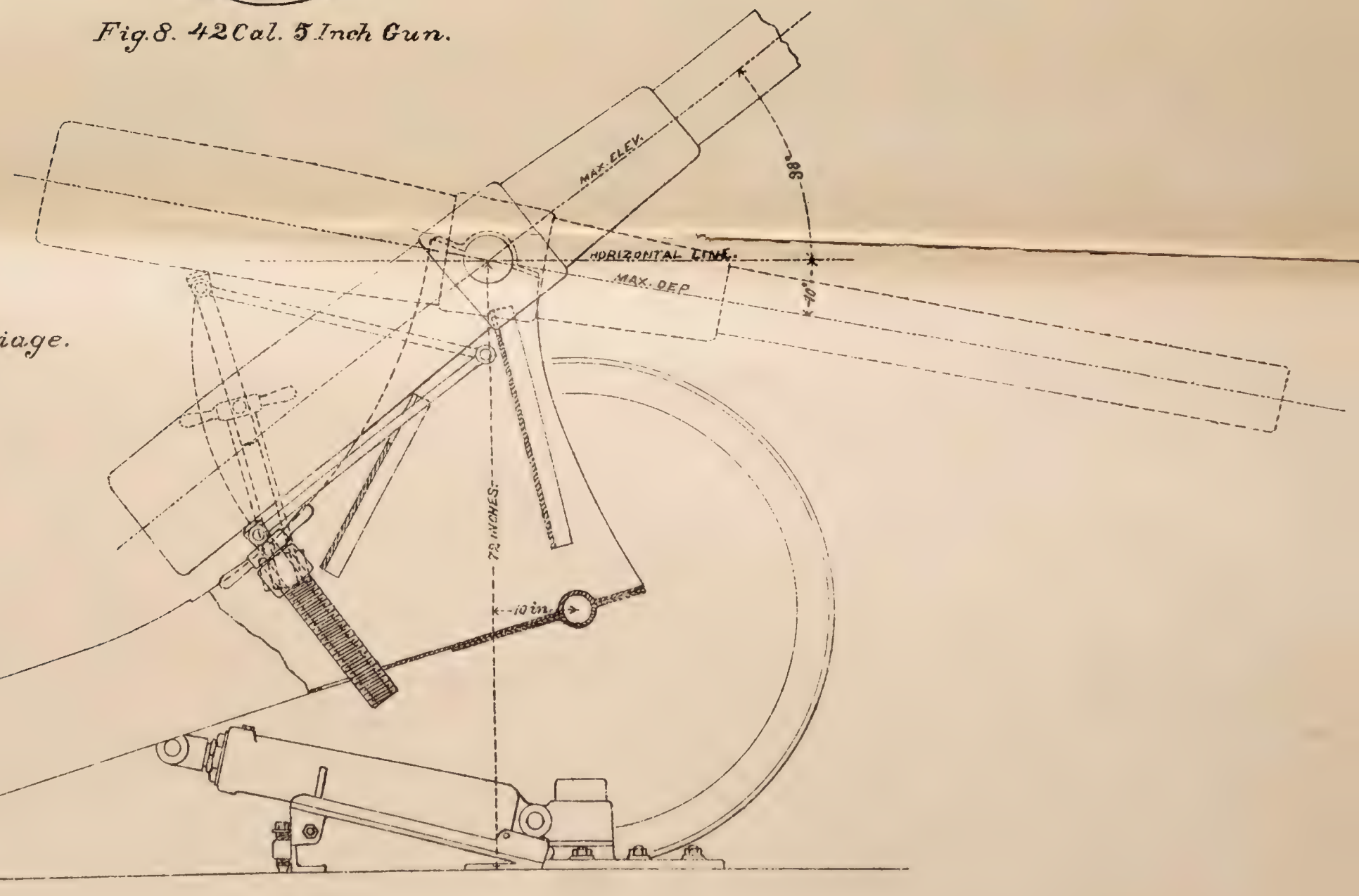


Fig. 5. Siege Carriage.

CHAPTER XXIII.

VARIOUS ARTILLERY CARRIAGES.

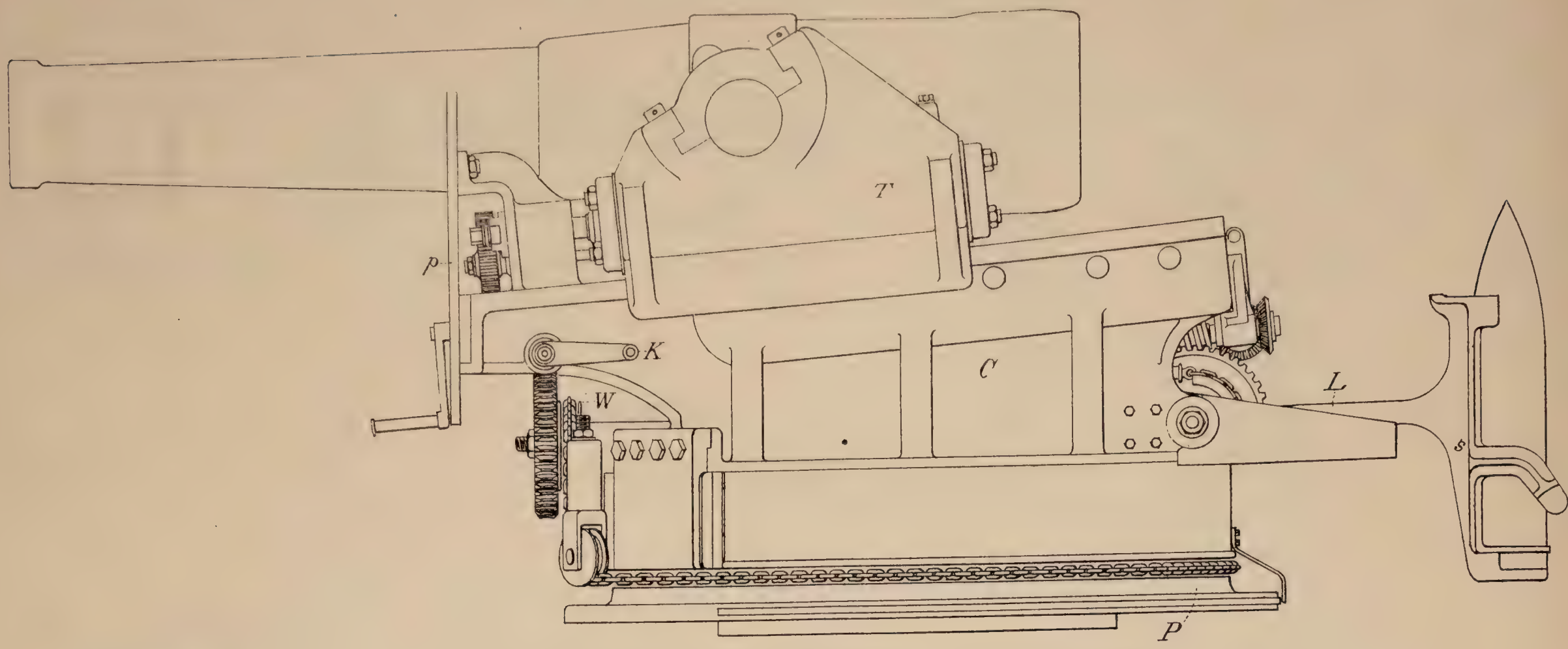


Fig. 6. Type of Modern S.C. Carriage.

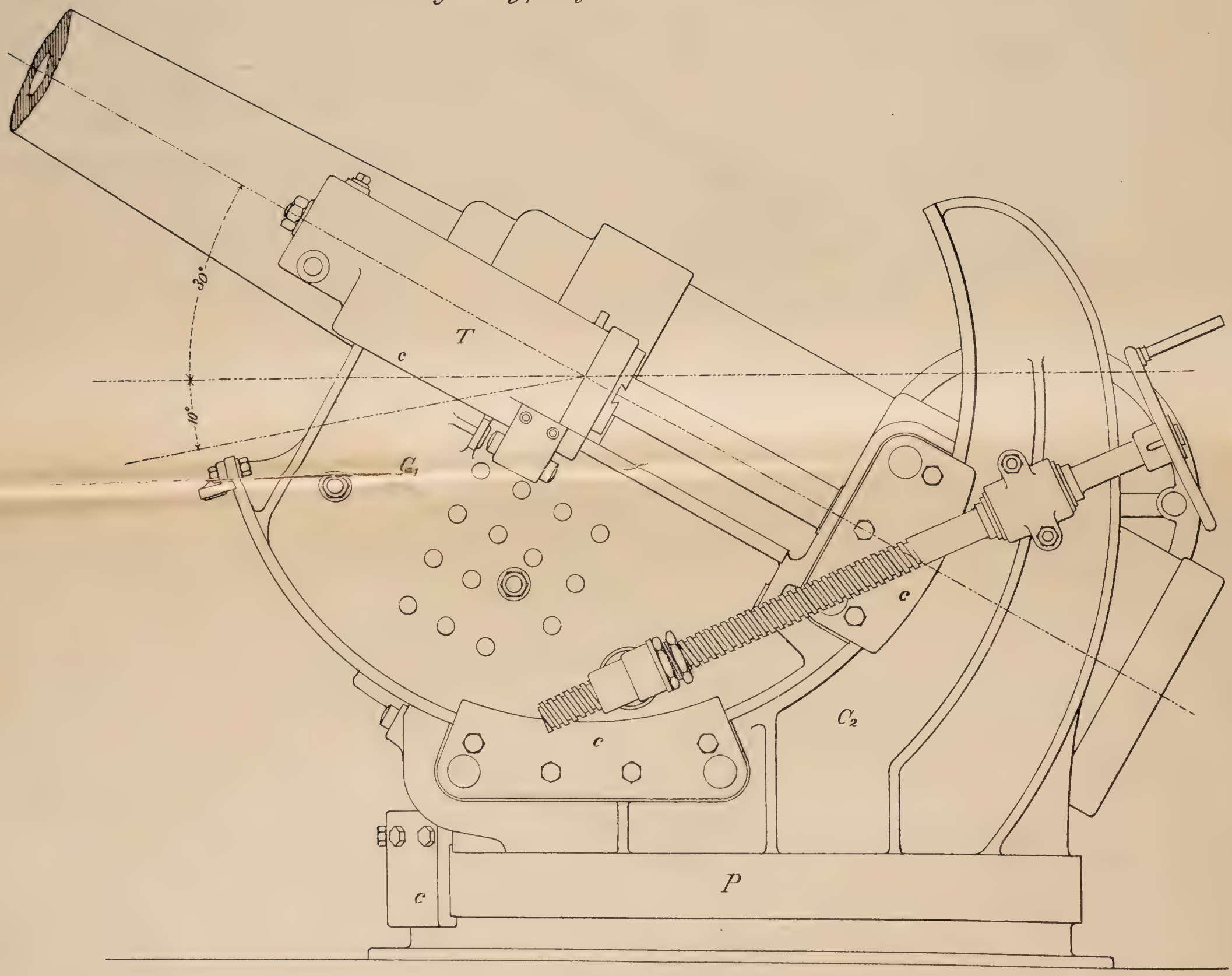


Fig. 9. S.C. Mortar Carriage.

CHAPTER XXIV

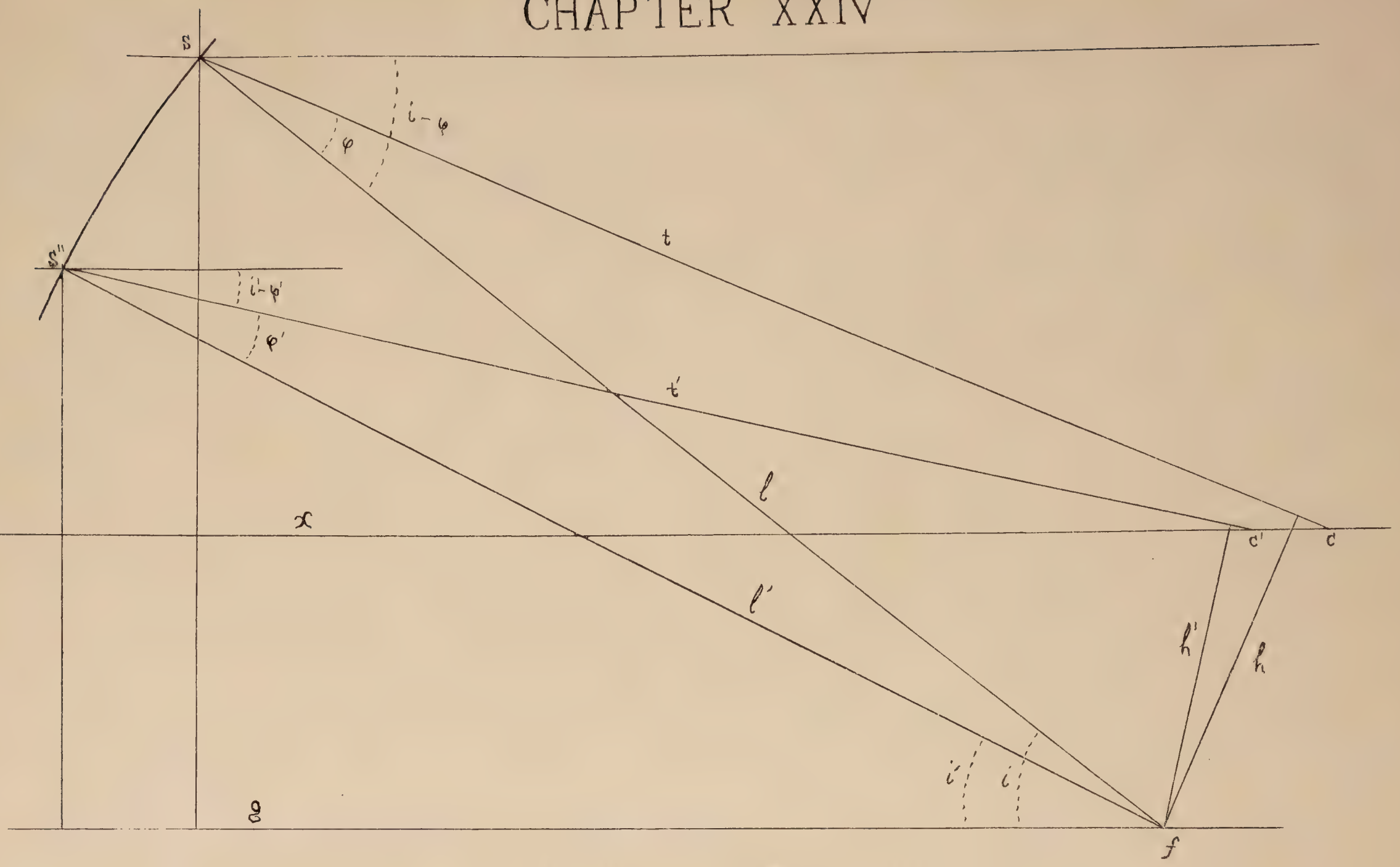


Fig.1 Angle of Draught

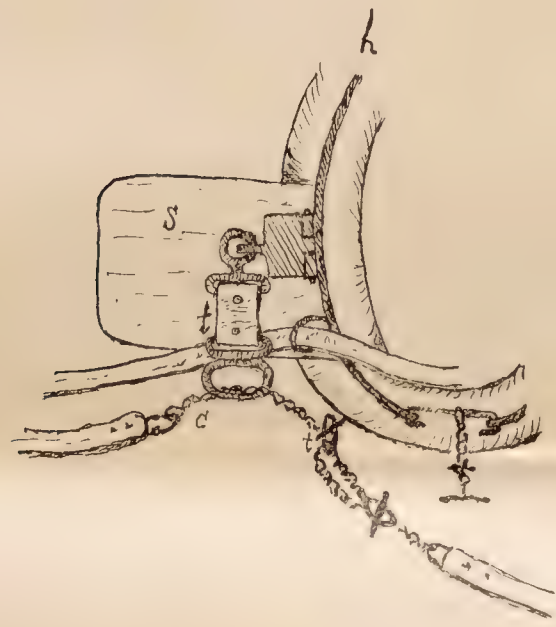


Fig.2 Details of Hames

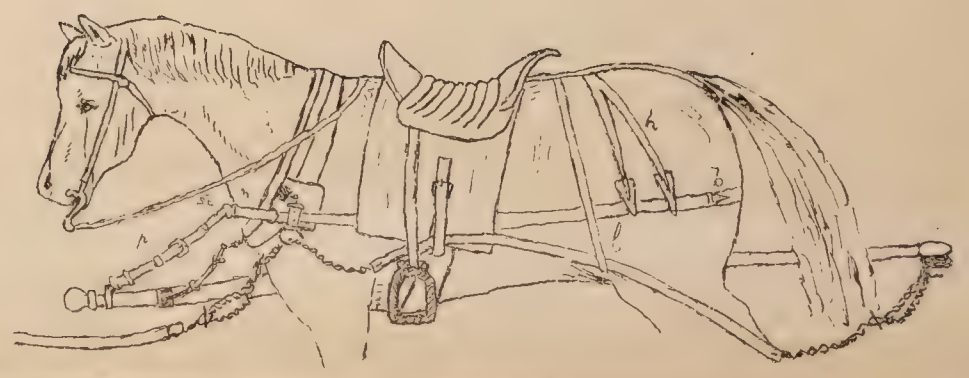


Fig.3 Harness

CHAPTER XXVII

SMALL ARM AMMUNITION

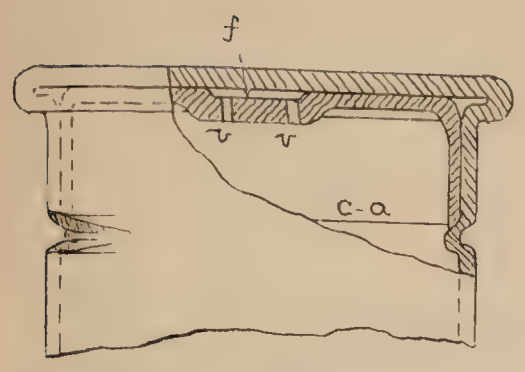


Fig.4, Cup Anvil Cartridge

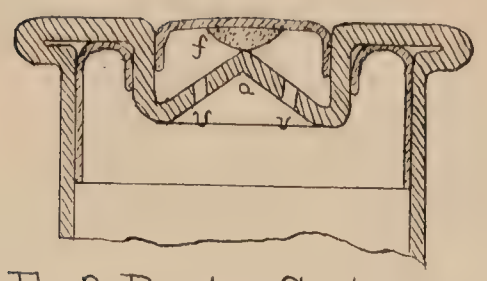


Fig.3, Berdan Cartridge

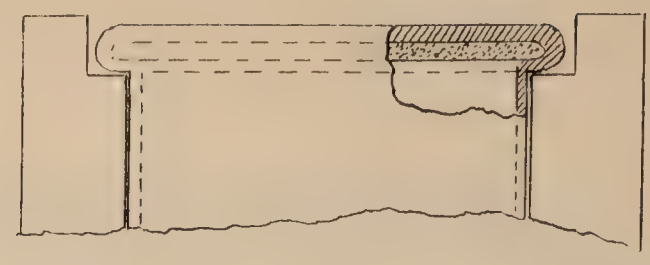


Fig.2, Rim fire Cartridge

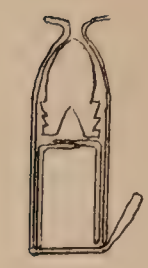


Fig.1, Paper Cartridge

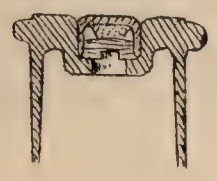


Fig.5, U.S. Solid Head

Fig.6.
Improved Berdan
Primer

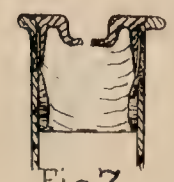


Fig.7
Morse Cartridge

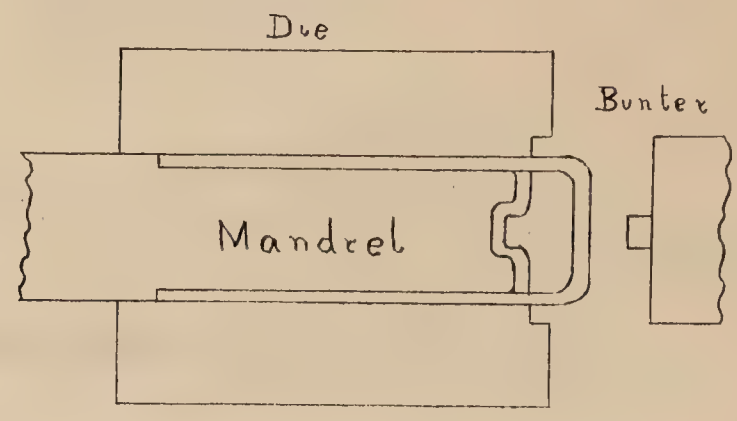


Fig.8, Heading

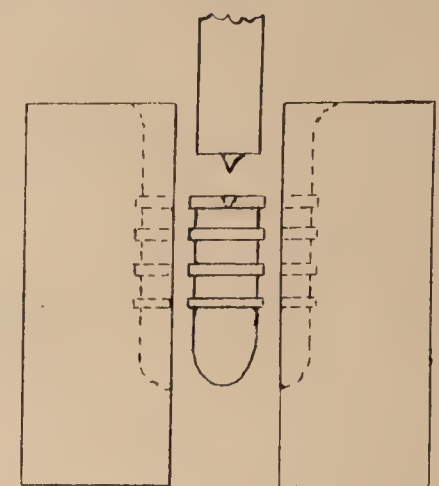


Fig 9. Bullet
Dies and Punch

CHAPTER XXVIII

SMALL ARMS

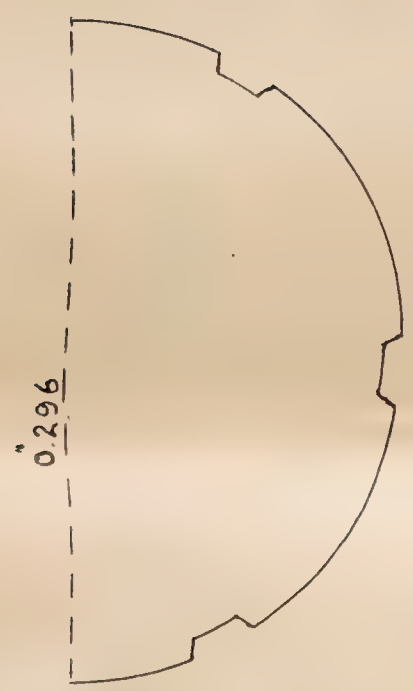


Fig.7, Rifling $\frac{10}{1}$

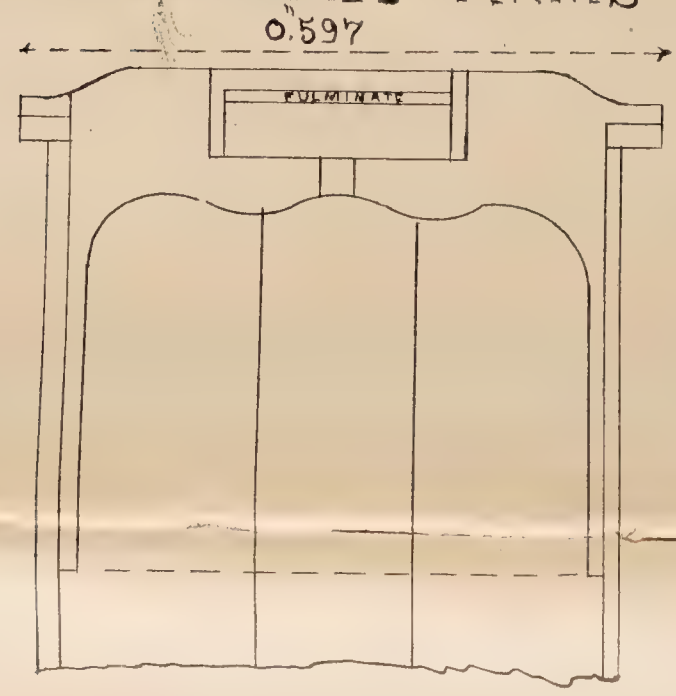


Fig.8 Cartridge Case $\frac{10}{1}$

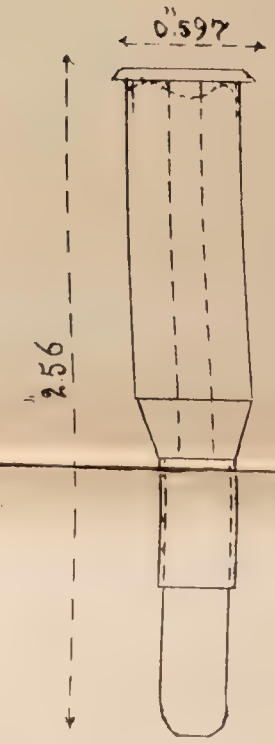


Fig.9, Cartridge $\frac{1}{1}$

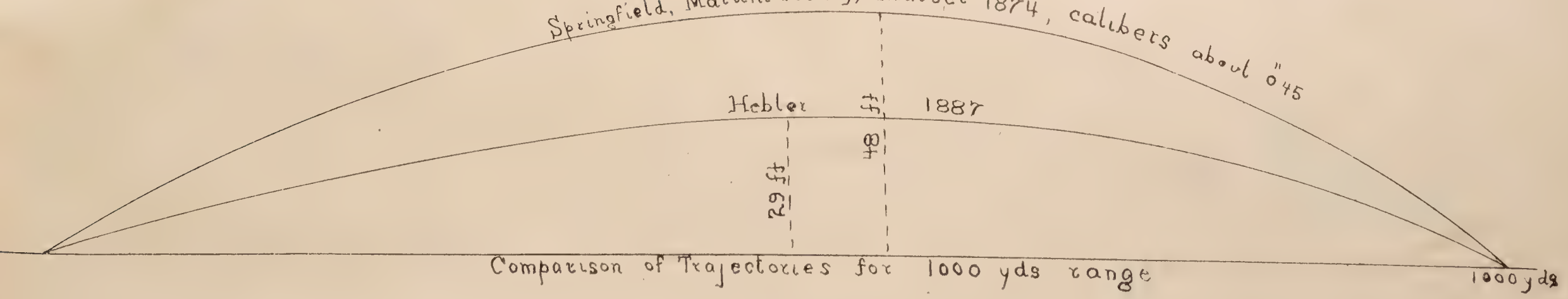


Fig. 10.

CHAPTER XXVIII.
SMALL ARMS.

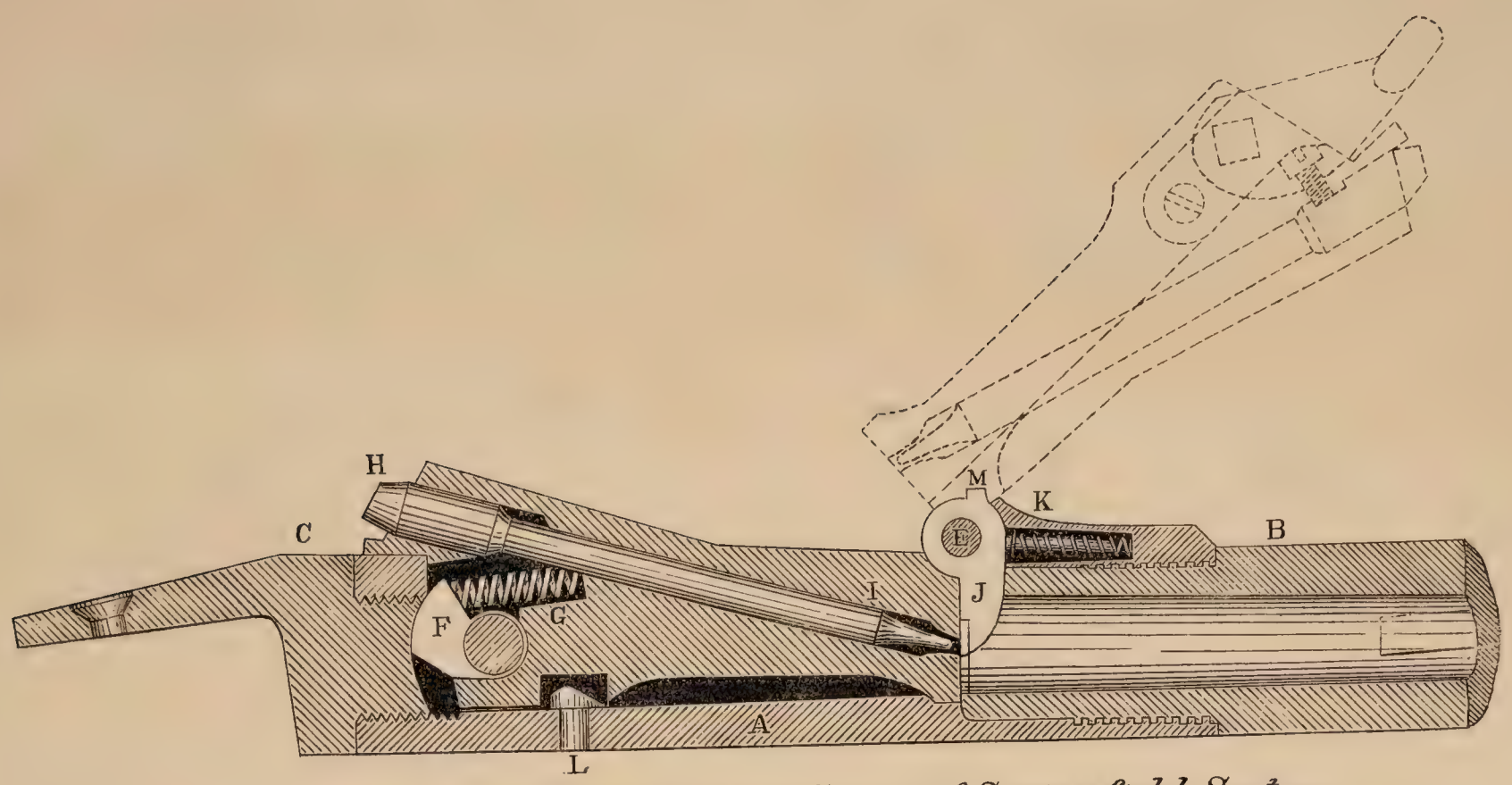


Fig. 3. Vertical Section of Springfield System.

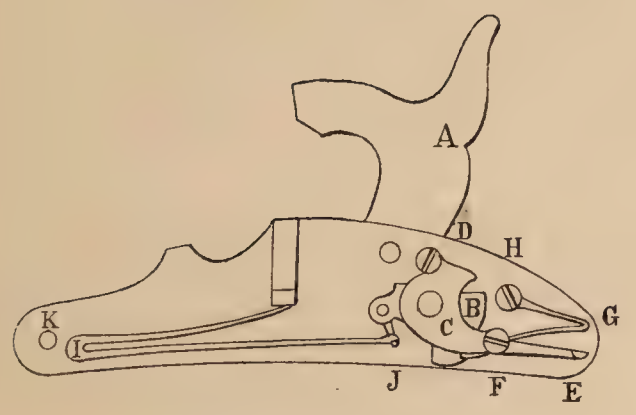


Fig. 4. Springfield Lock–inside view.

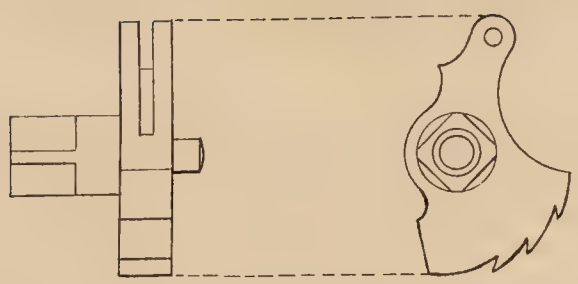


Fig. 5. Tumbler and Tumbler Screw.

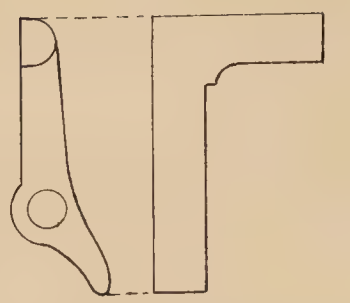


Fig. 6. Sear and Sear Screw.

CHAPTER XXX.
POINTING.

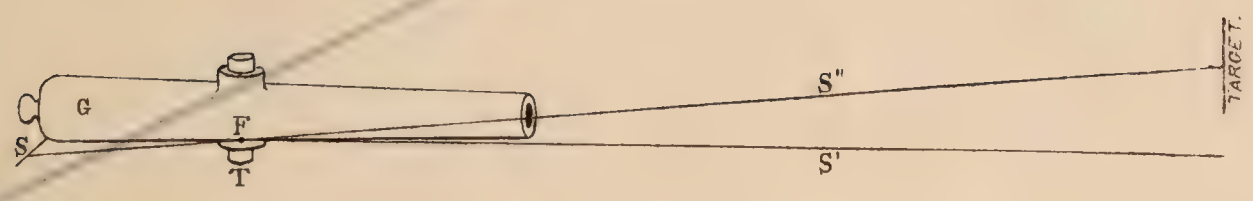


Fig. 1.

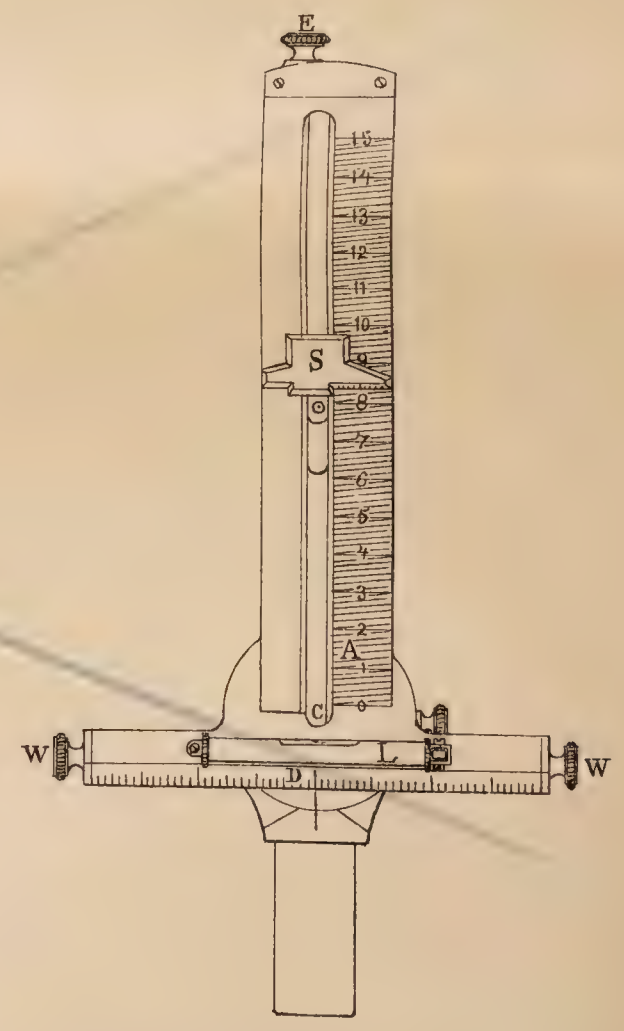
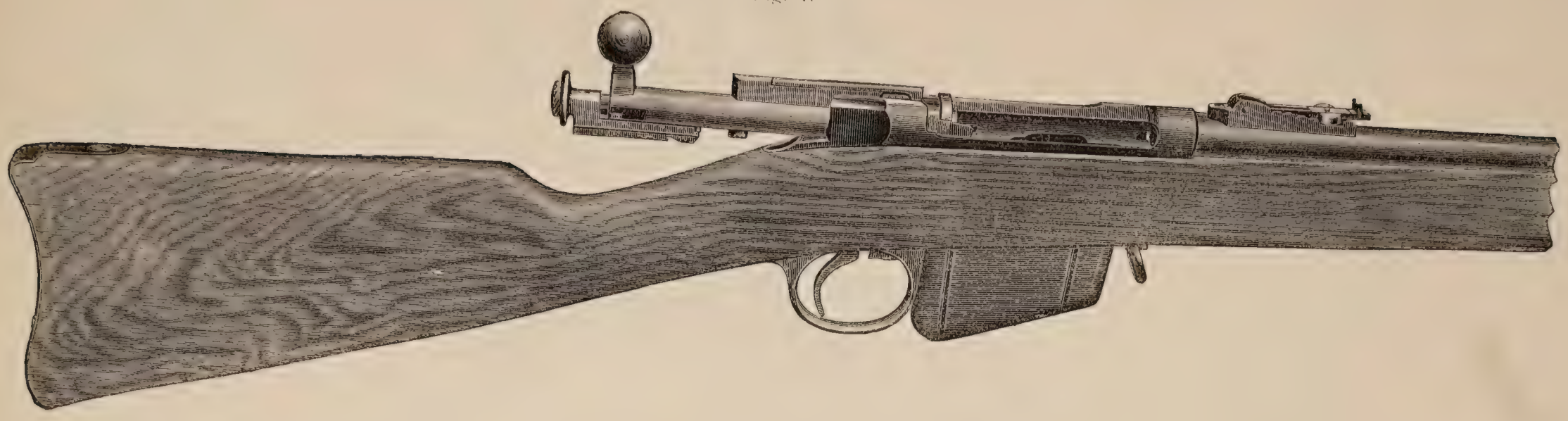


Fig. 2. Sight for 3.2" B.L.R.

Chapter XXVIII.—Small Arms.

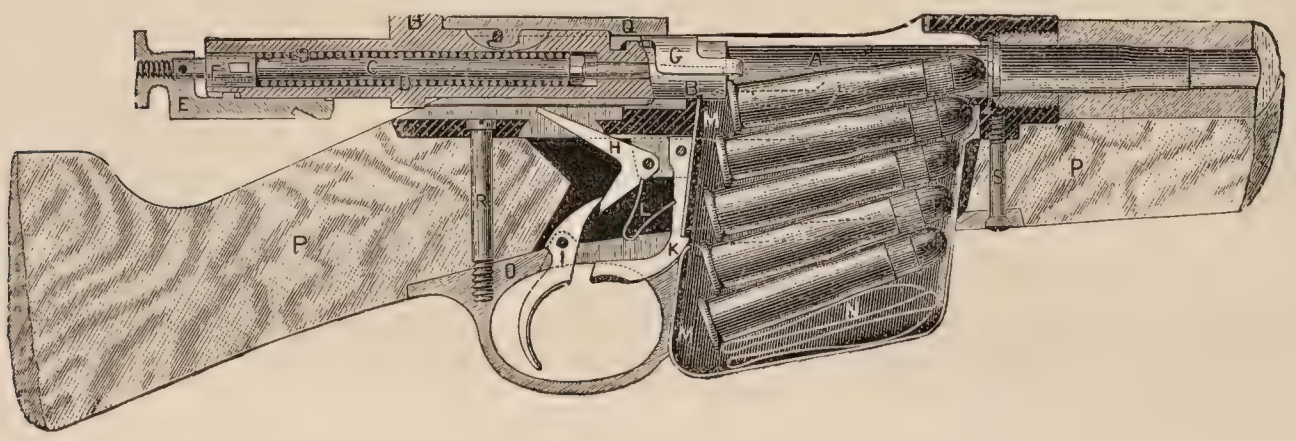
Fig. 1.



Lee System Open, with Magazine Attached.

Fig. 2.

Sectional View of Lee System, with Magazine in Place.



A, Receiver.
B, Bolt.
C, Firing Pin.
D, Main Spring.
E, Hammer.
F, Key Sleeve.
G, Extractor.
H, Sear,
I, Trigger.
K, Magazine Catch.
L, Sear Spring.
M, Magazine.
N, Magazine Spring.
O, Trigger Guard.
P, Stock.
R, Tang Screw.
S, Guard Screw.

CHAPTER XXIX.

CANNON WITHOUT RECOIL.

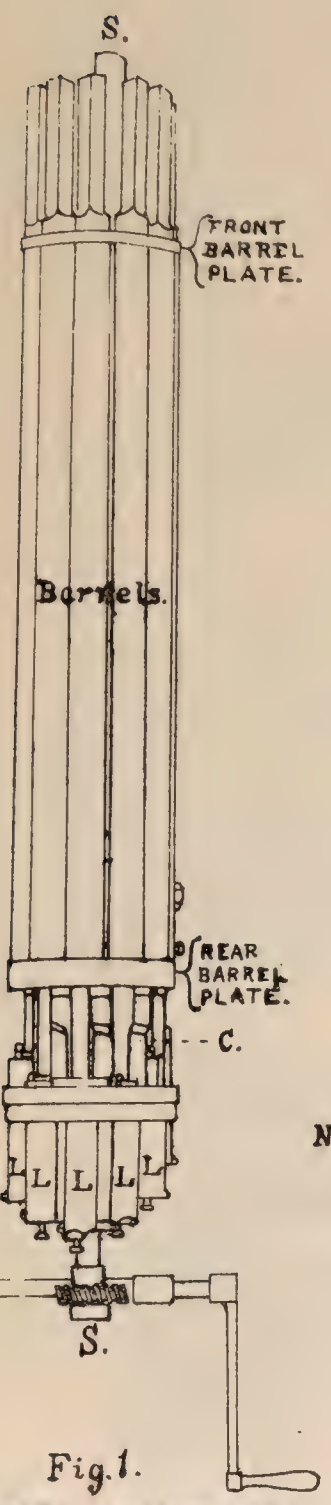


Fig. 1.
GENERAL ARRANGEMENT OF MECHANISM.

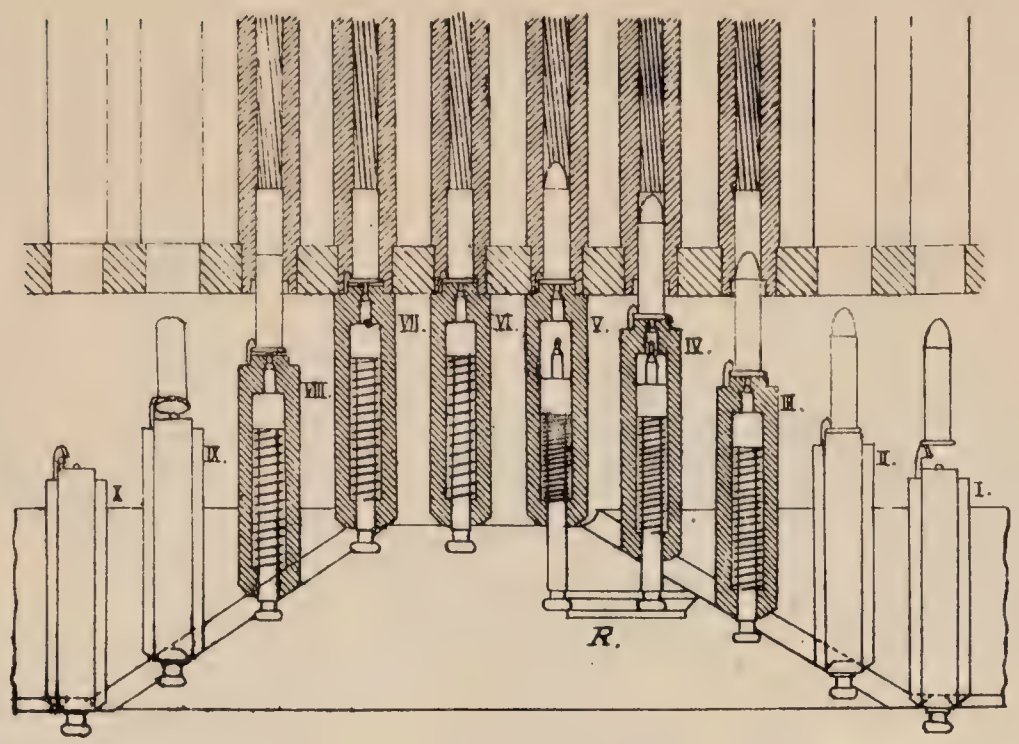


Fig. 2.
CATLING GUN, CALIBRE 0.45 INCH.

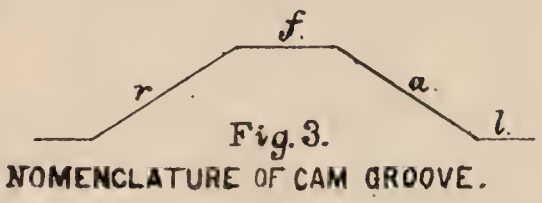


Fig. 3.
NOMENCLATURE OF CAM GROOVE.

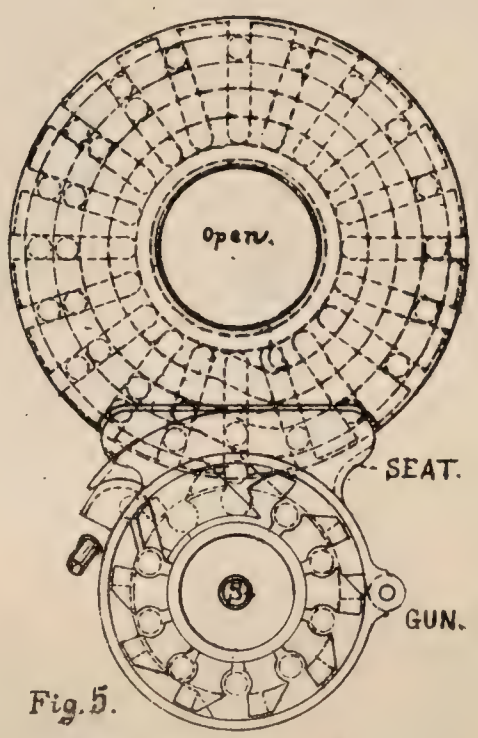


Fig. 5.
ACCLES' MAGAZINE. ON GUN.

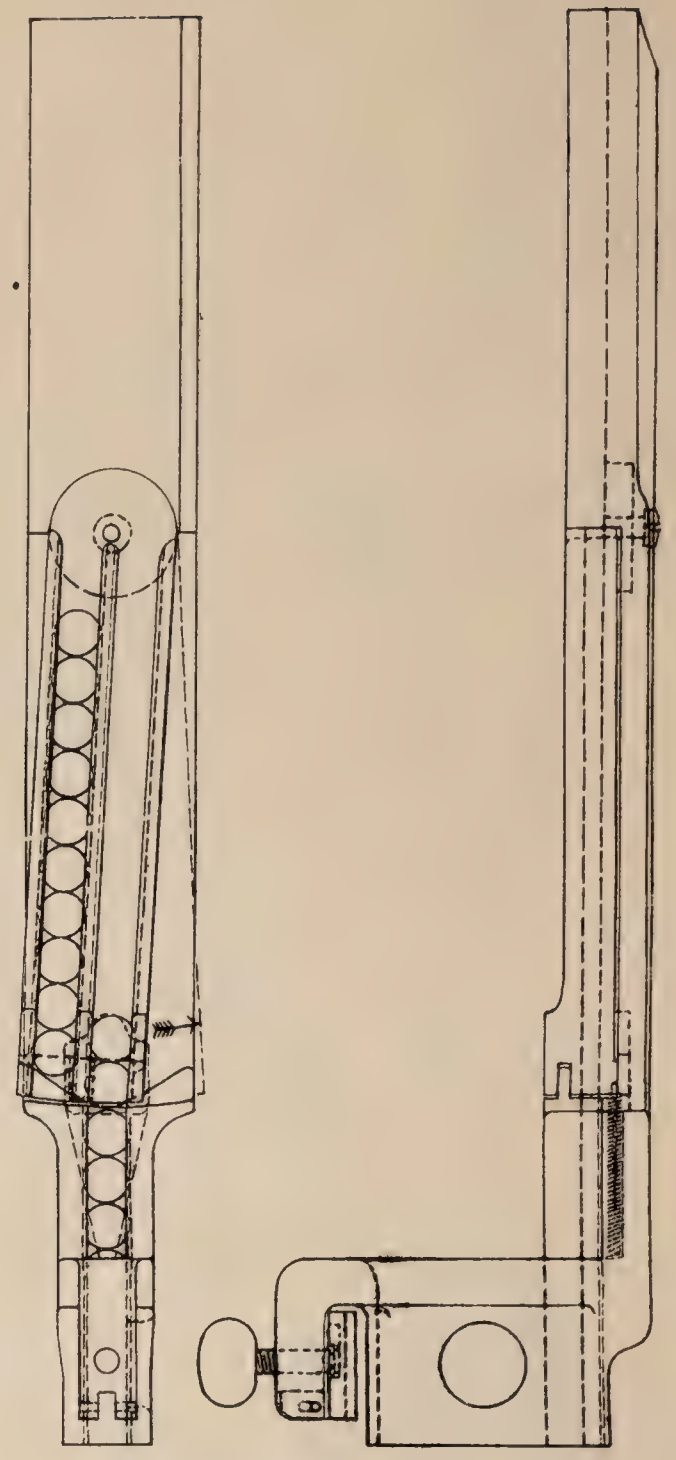


Fig. 4. BRUCE FEED GUIDE.

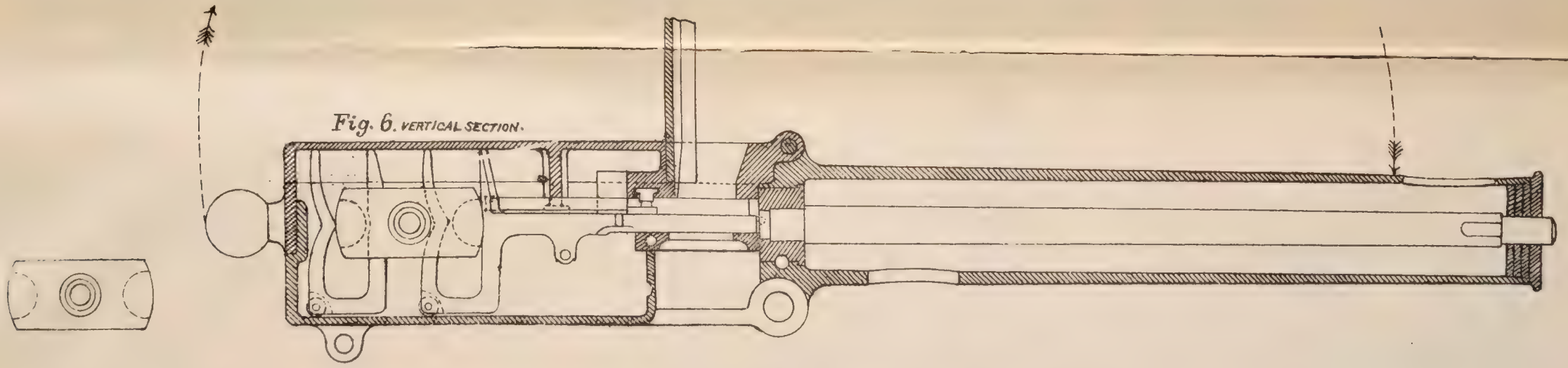
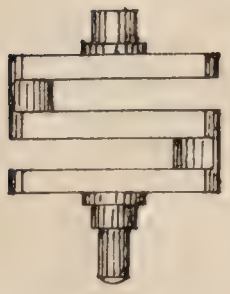


Fig. 6. VERTICAL SECTION.



LOCK CAM.

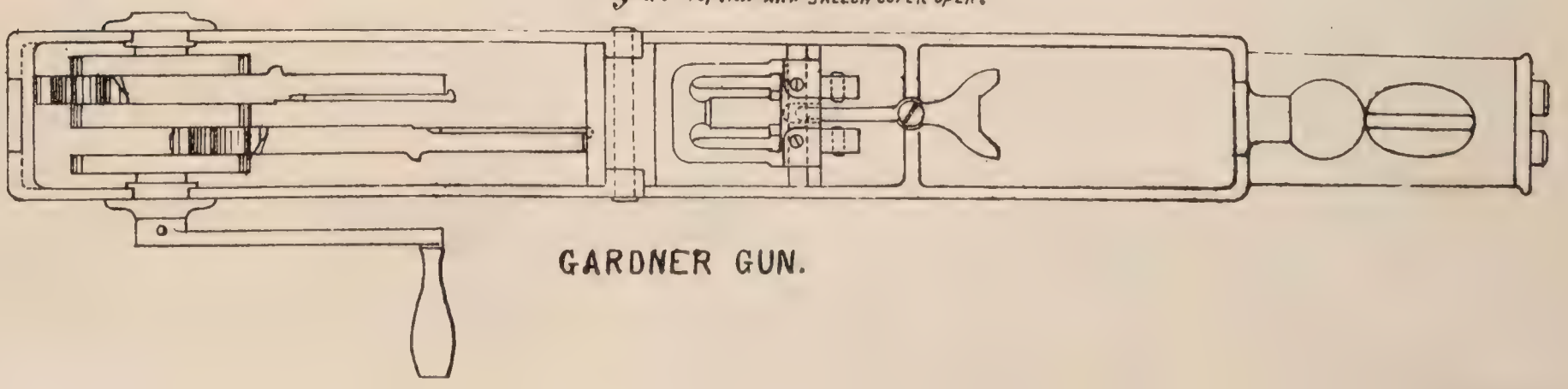
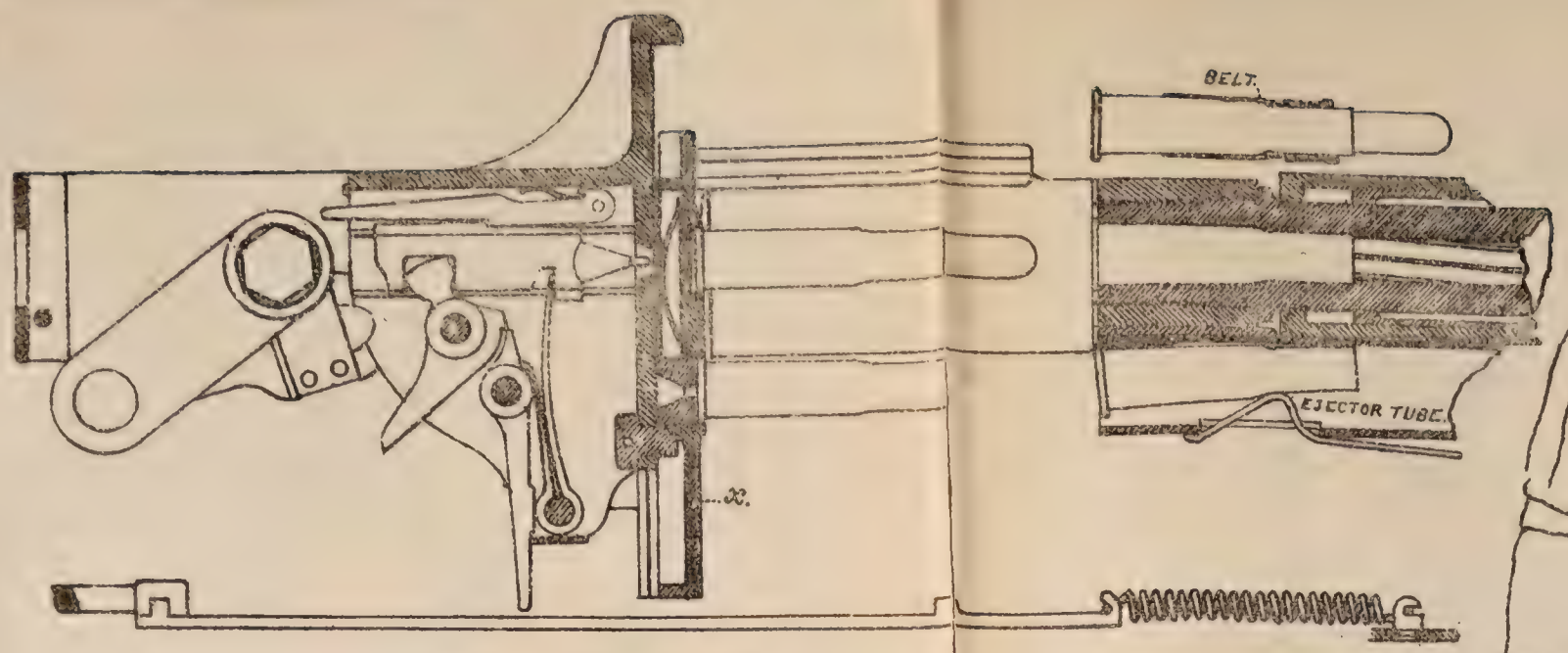


Fig. 7. TOP VIEW WITH SCREECH COVER OPEN.

GARDNER GUN.



Maxim Feed. page 10.

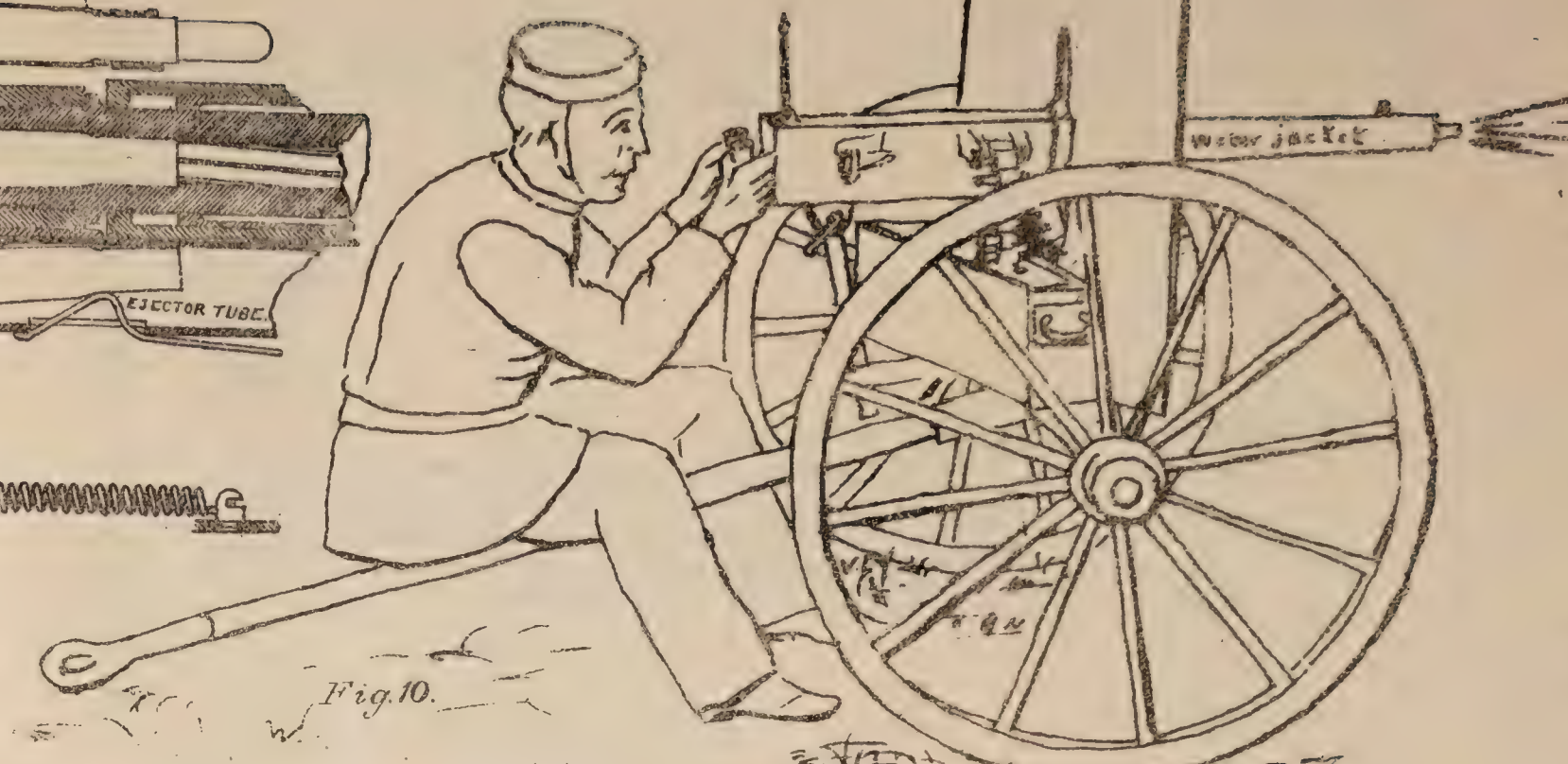


Fig. 10.

MAXIM AUTOMATIC MACHINE GUN.

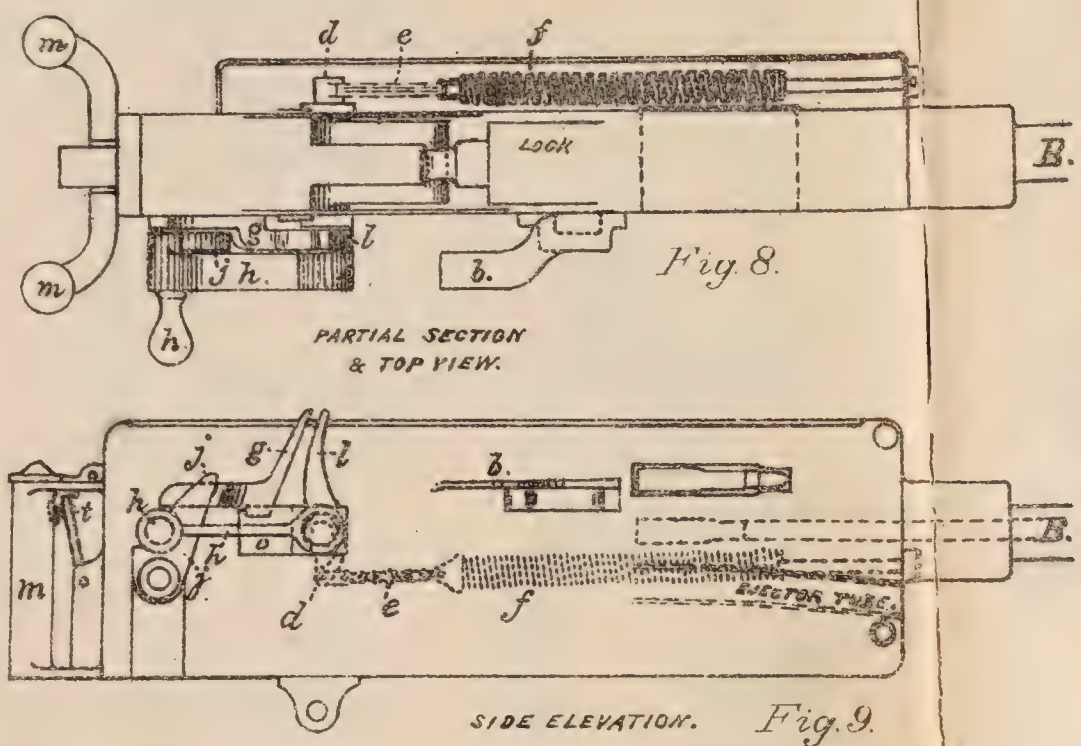


Fig. 8.

Fig. 9.

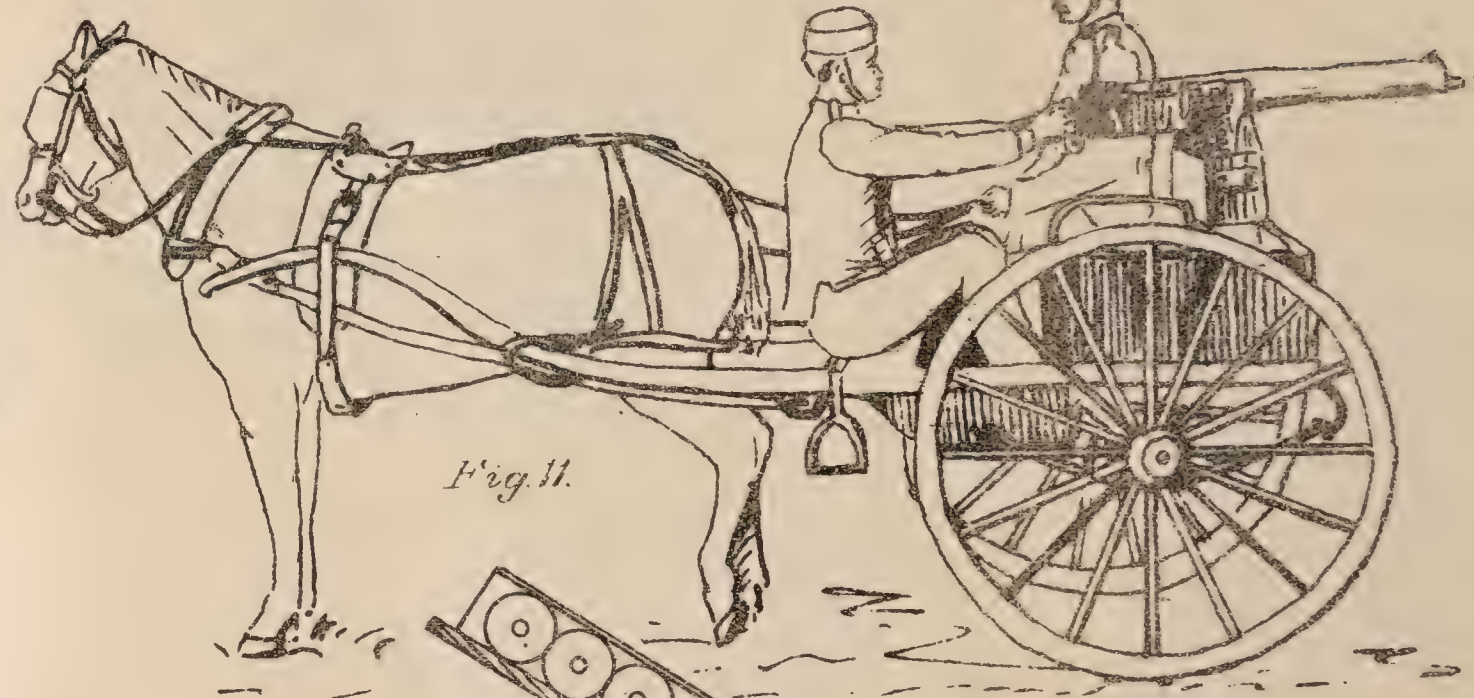


Fig. 11.

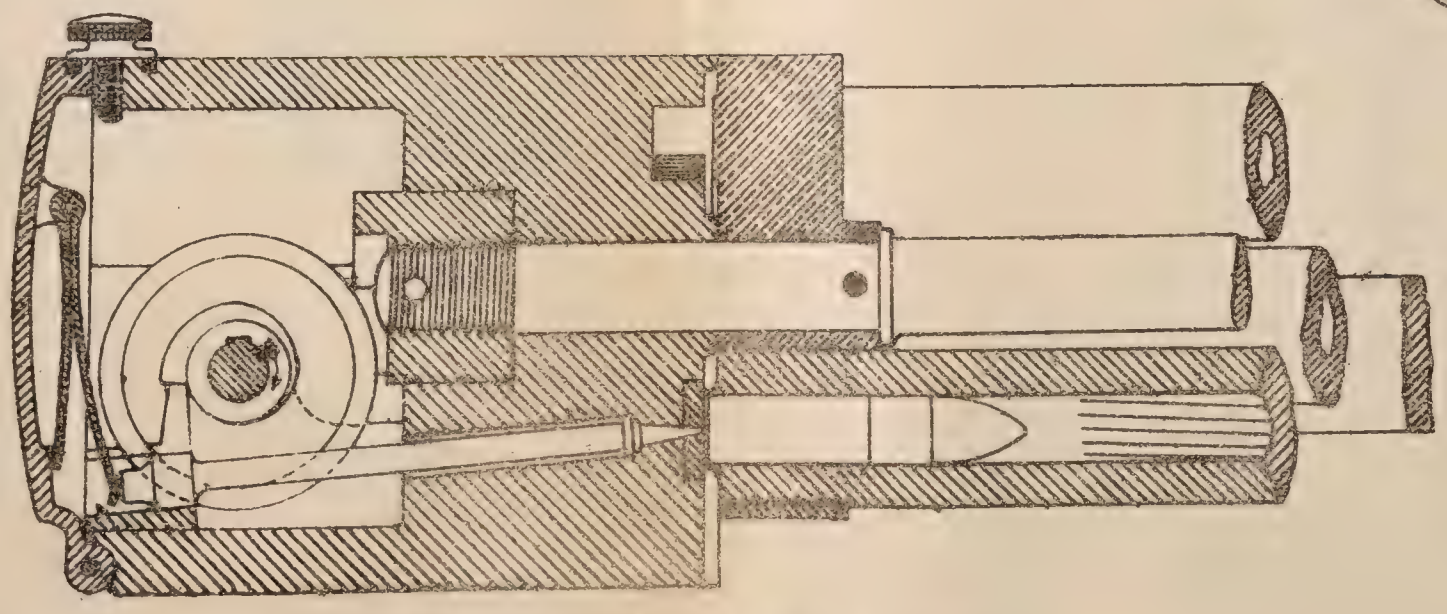


Fig. 12. Hotchkiss Revolving Cannon.

Hotchkiss Rev'g Cannon.— Rotating device.

CHAPTER XXIX.

CANNON WITHOUT RECOIL.

CHAPTER XXIX.

CANNON WITHOUT RECOIL.

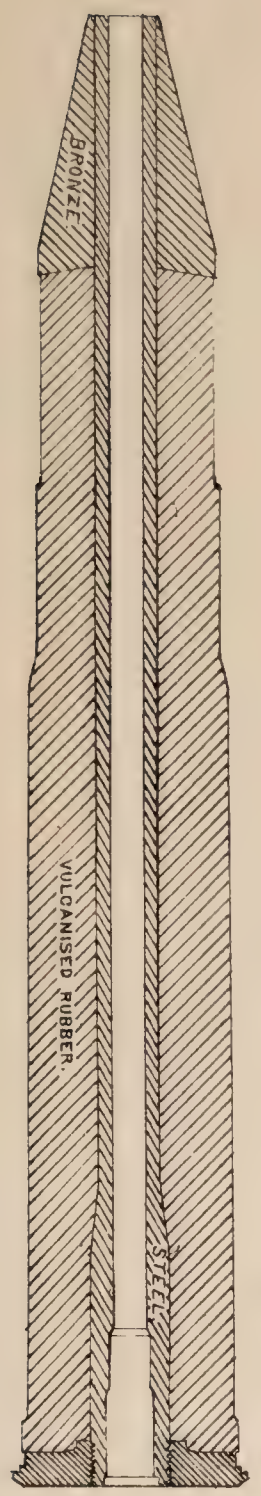
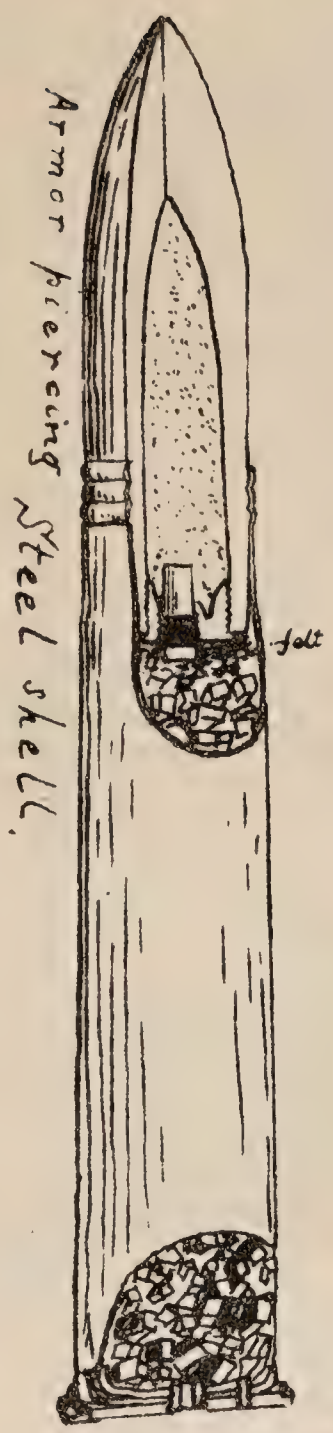
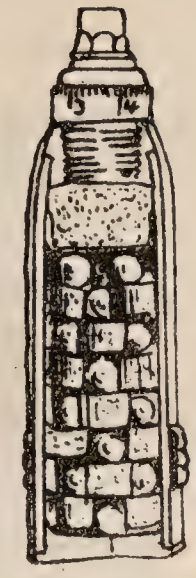


Fig. 18. Drill Cartridge.





Cartridge and Shrapnel

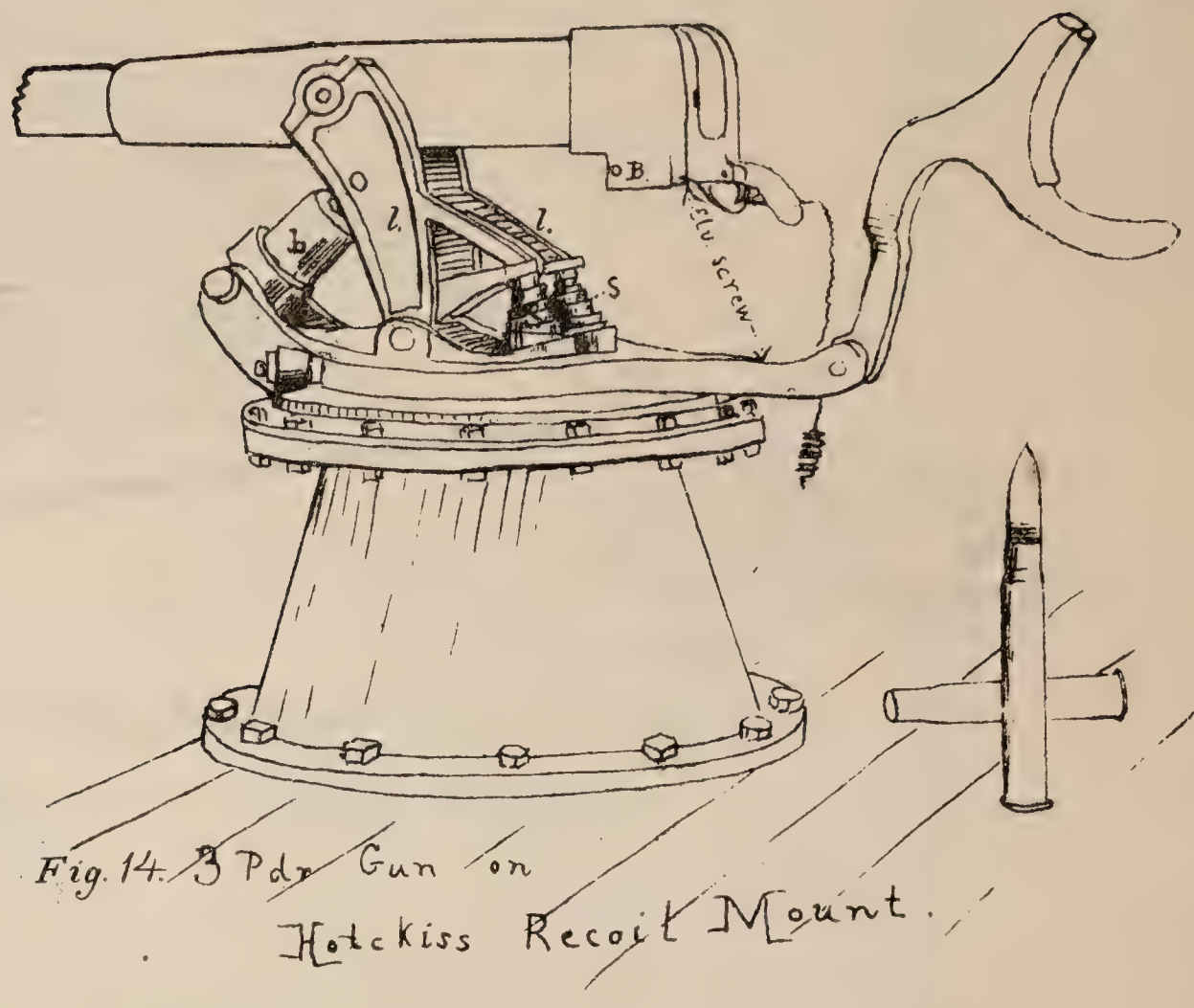


Fig. 14. 3 Pdr Gun on
Hotckiss Recoil Mount.

Fig. 13.
3 pdr on Crinoline Mount.

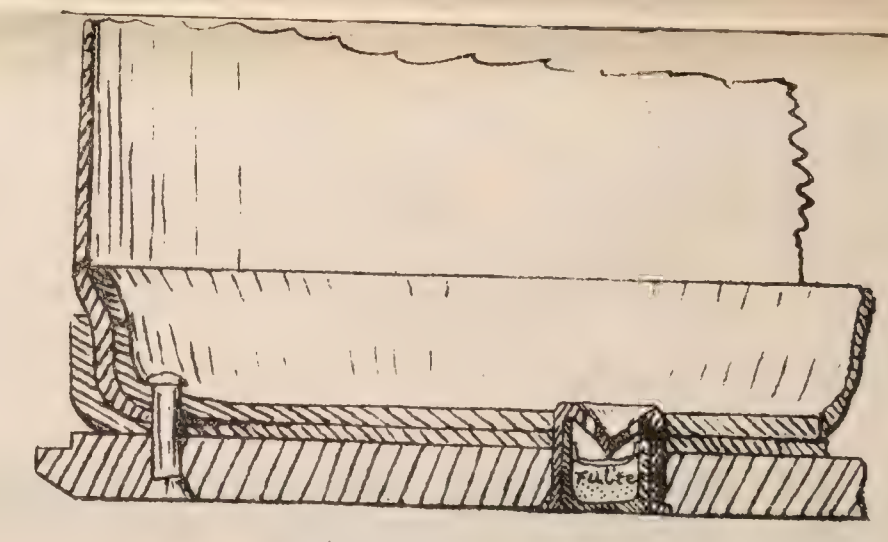


Fig. 17. Built-up Cartridge.
33 pdr. Full Size.

CHAPTER XXIX.

CANNON WITHOUT RECOIL.

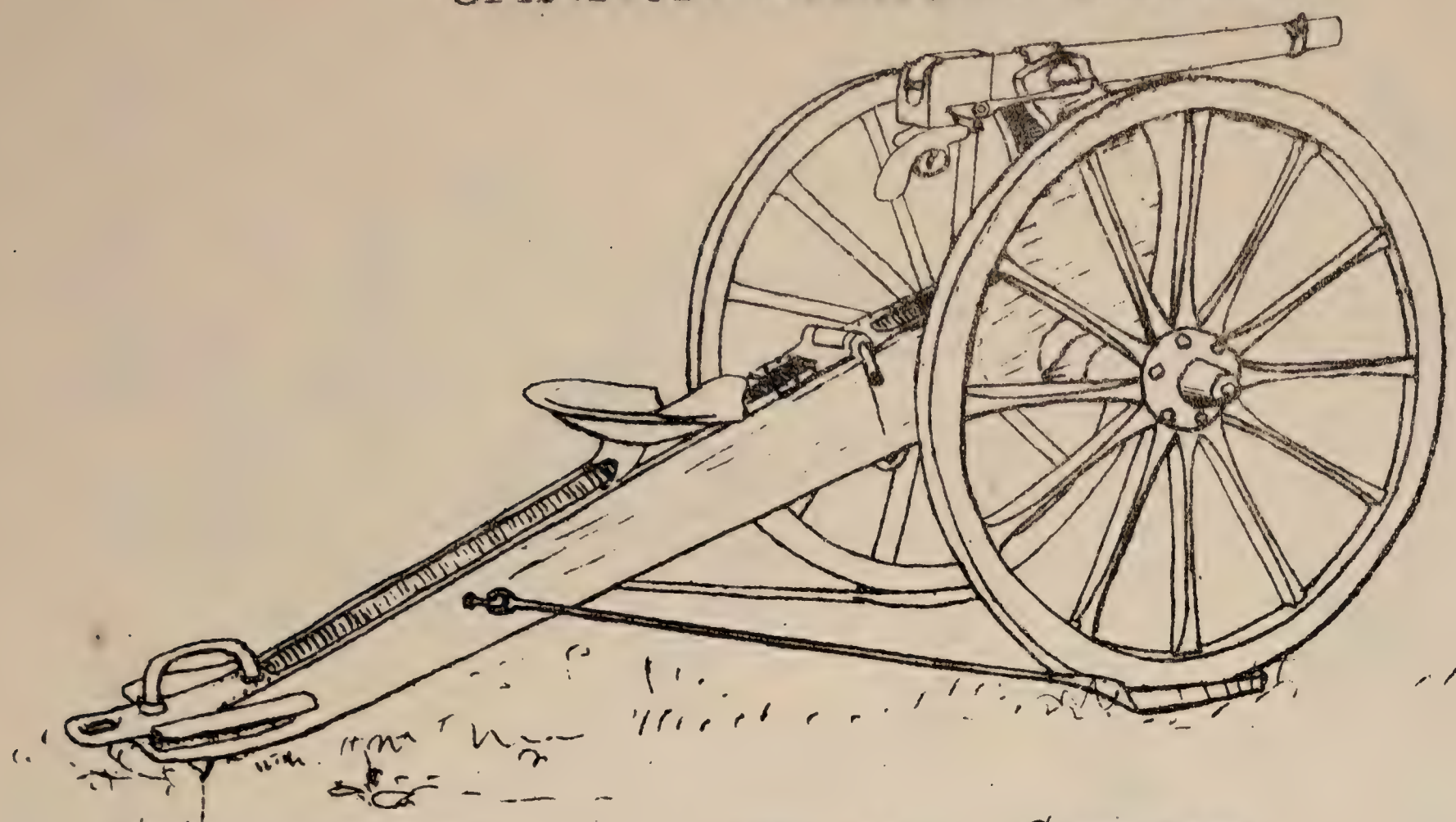


Fig. 15. 1 Pdr. Gun on Mountain Carriage.
(Without elerating screw.)

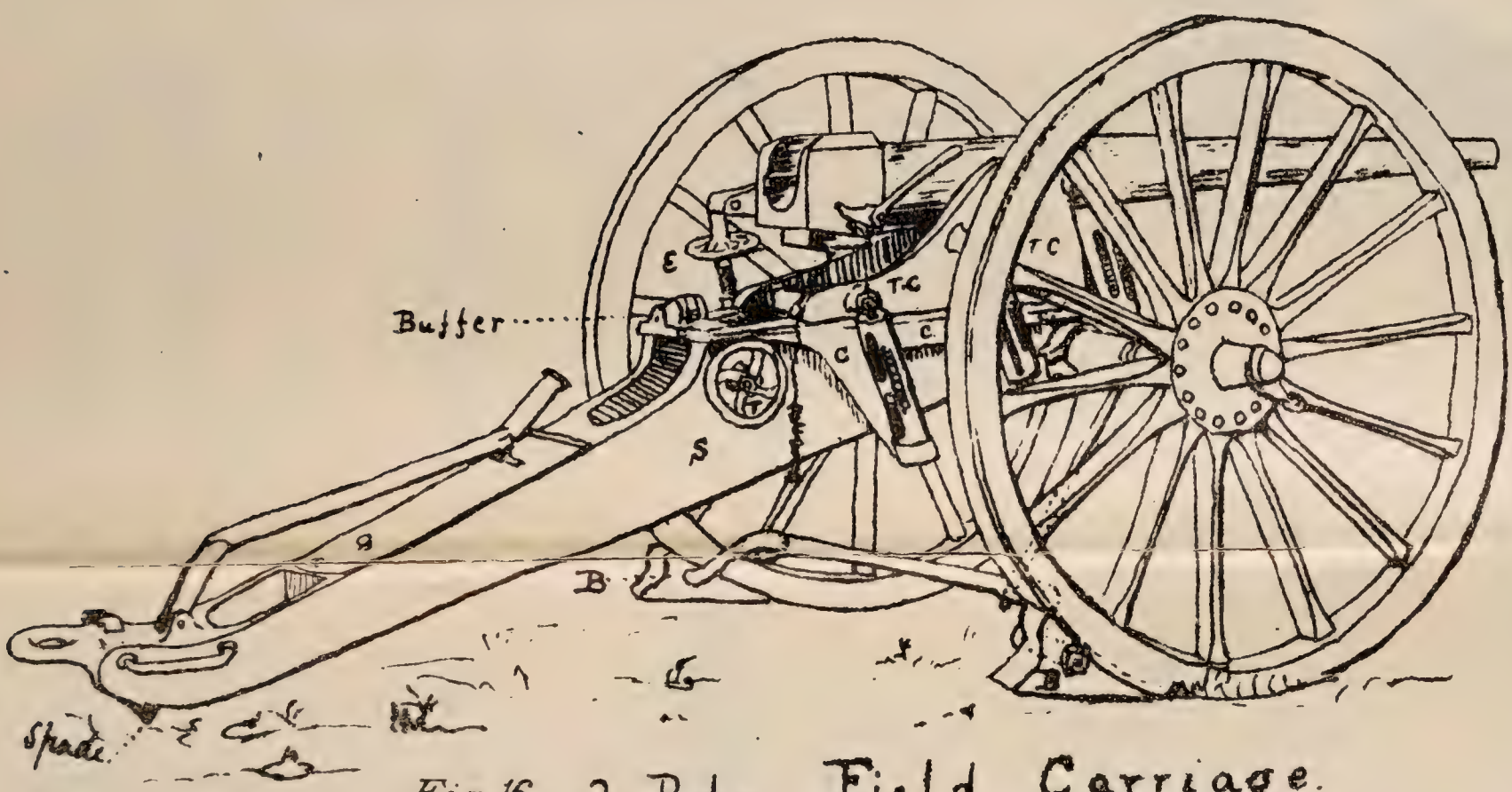


Fig. 16. 3 Pdr Field Carriage.

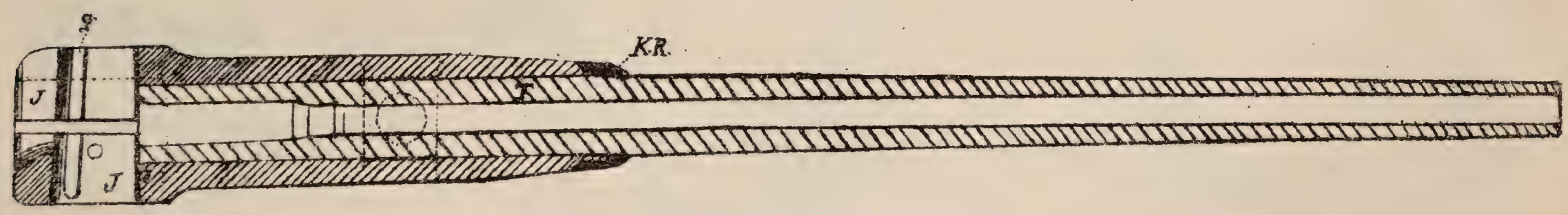


Fig. 19. HOTCHKISS R-F. GUN.
Longitudinal Section.

CHAPTER XXIX.

CANNON WITHOUT RECOIL.

HOTCHKISS RAPID FIRING GUNS.

Fig. 20. Longitudinal Elevation.

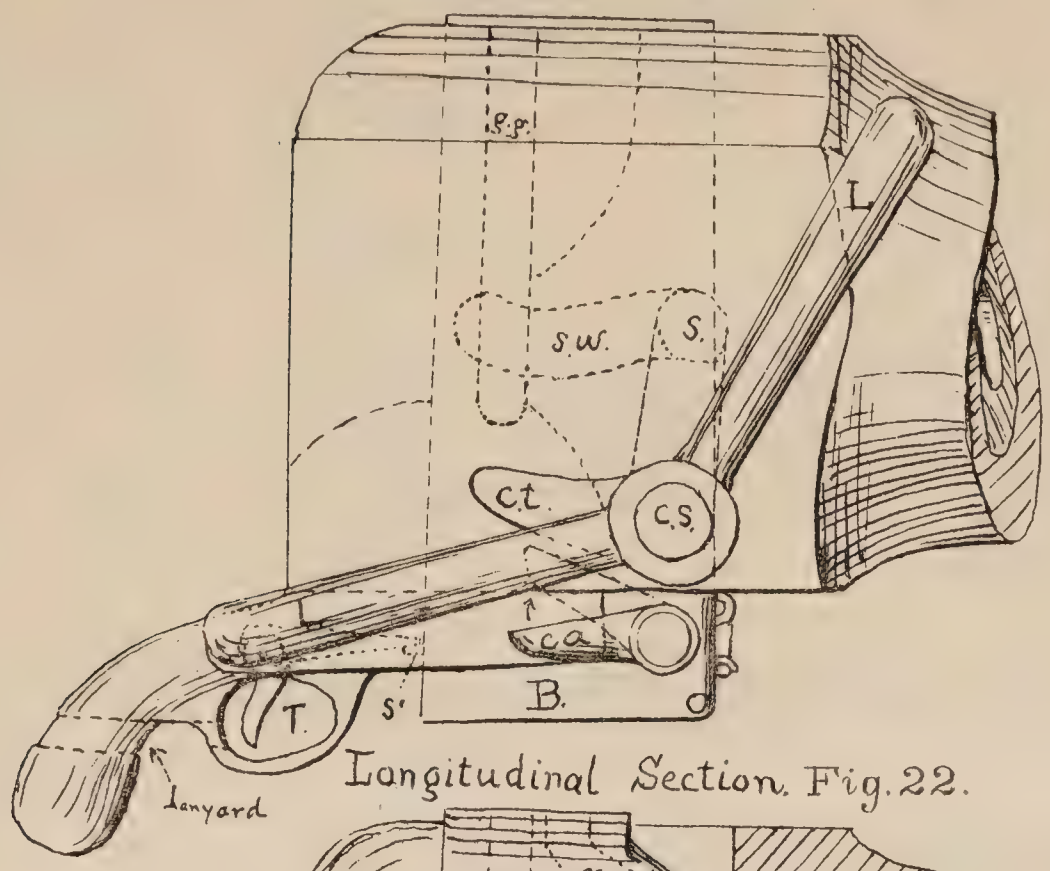
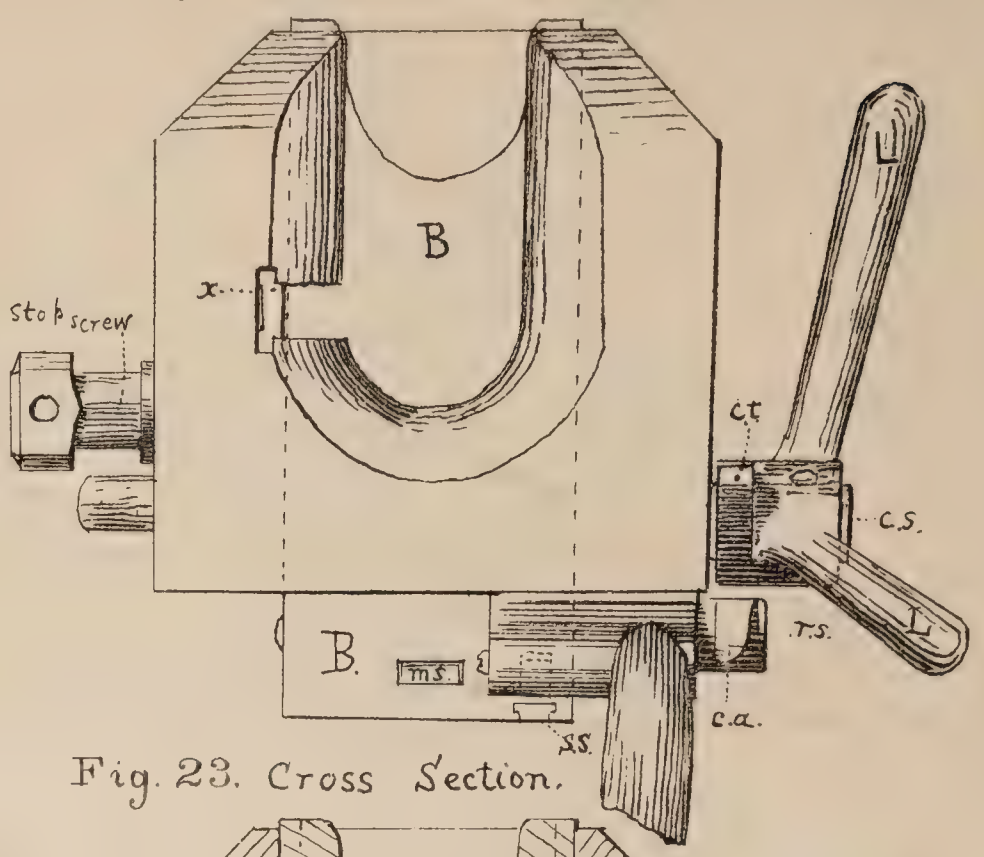


Fig. 21. Rear Elevation.



Longitudinal Section. Fig. 22.

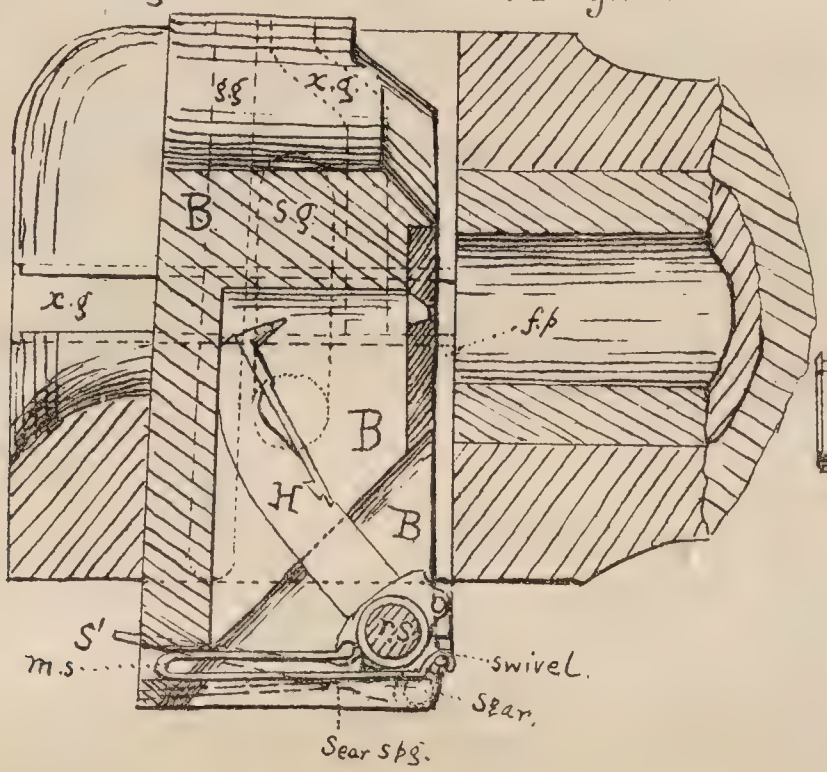


Fig. 23. Cross Section.

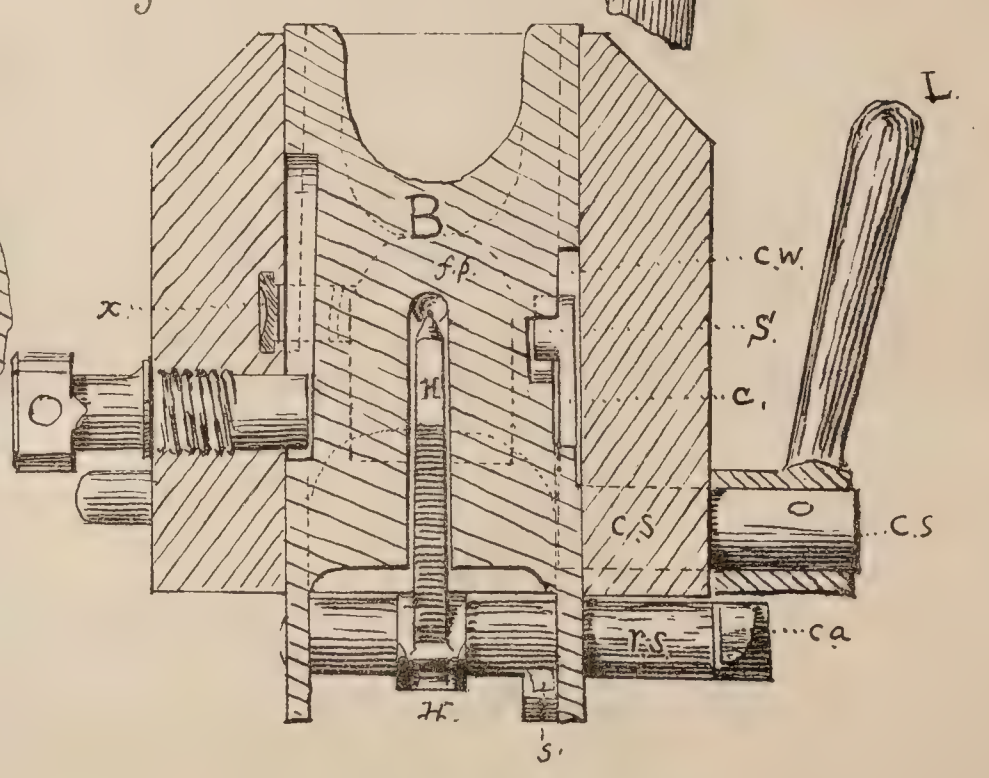
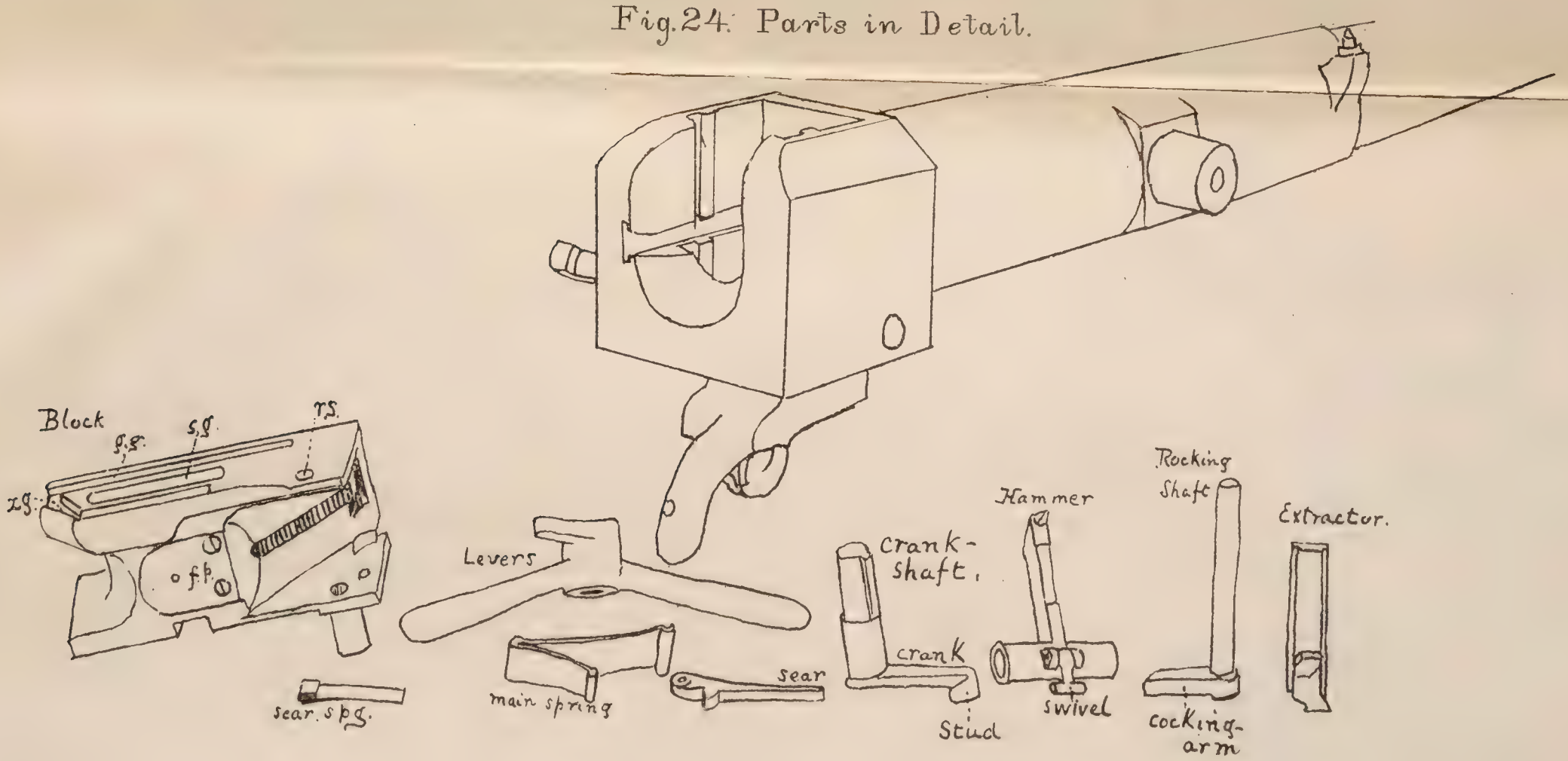


Fig. 24. Parts in Detail.



MAXIM R. F. GUN.

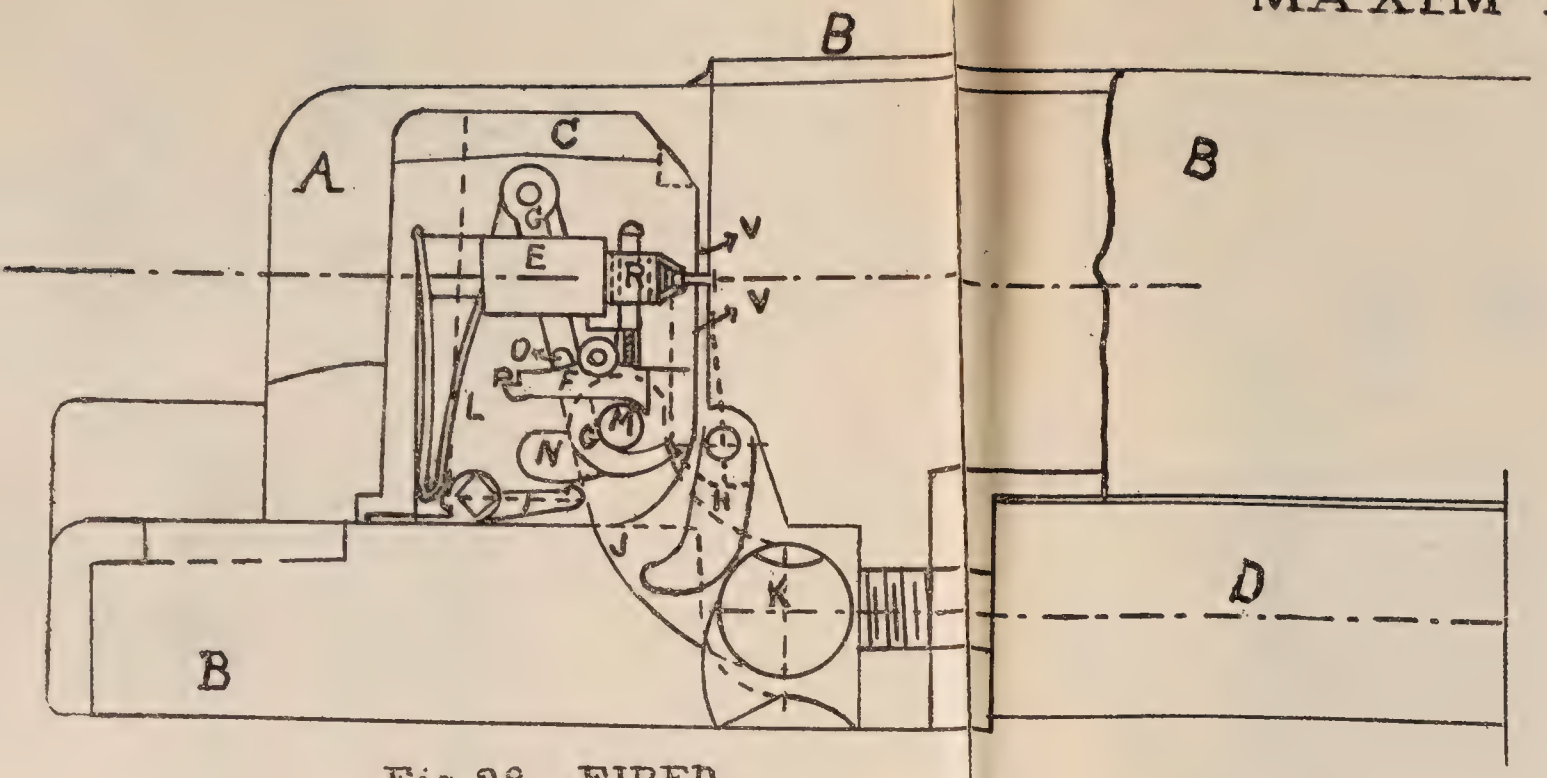


Fig. 28. FIRED.

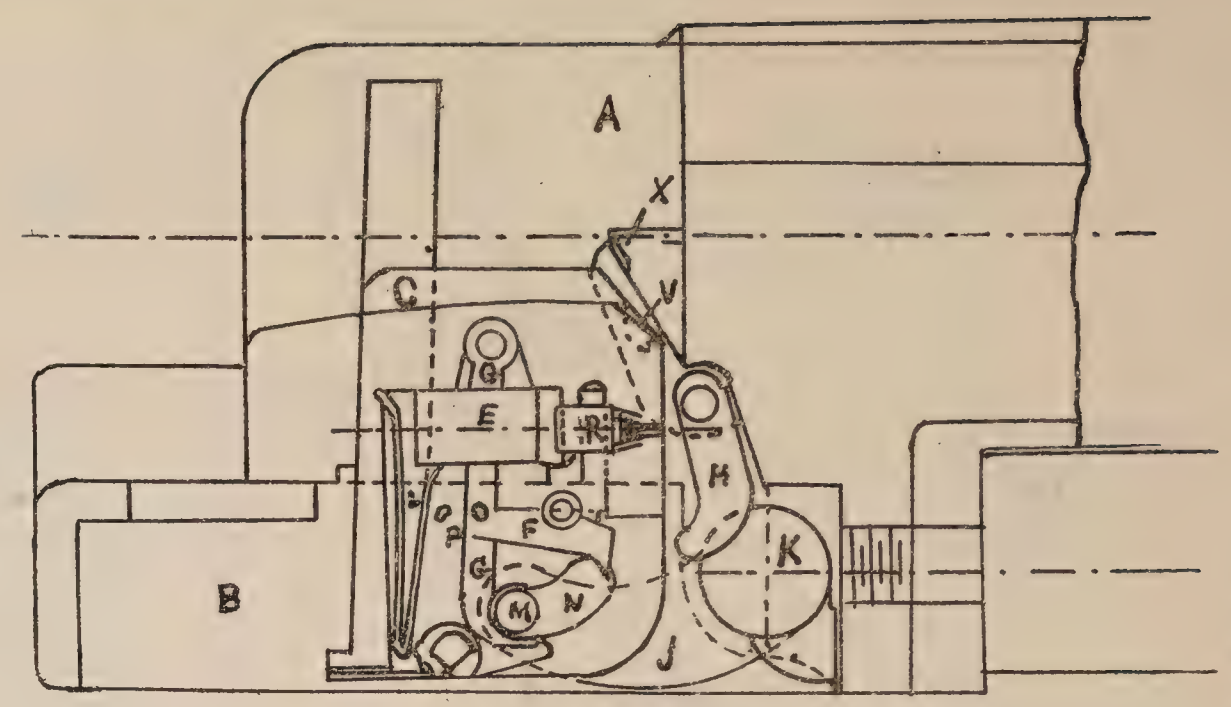
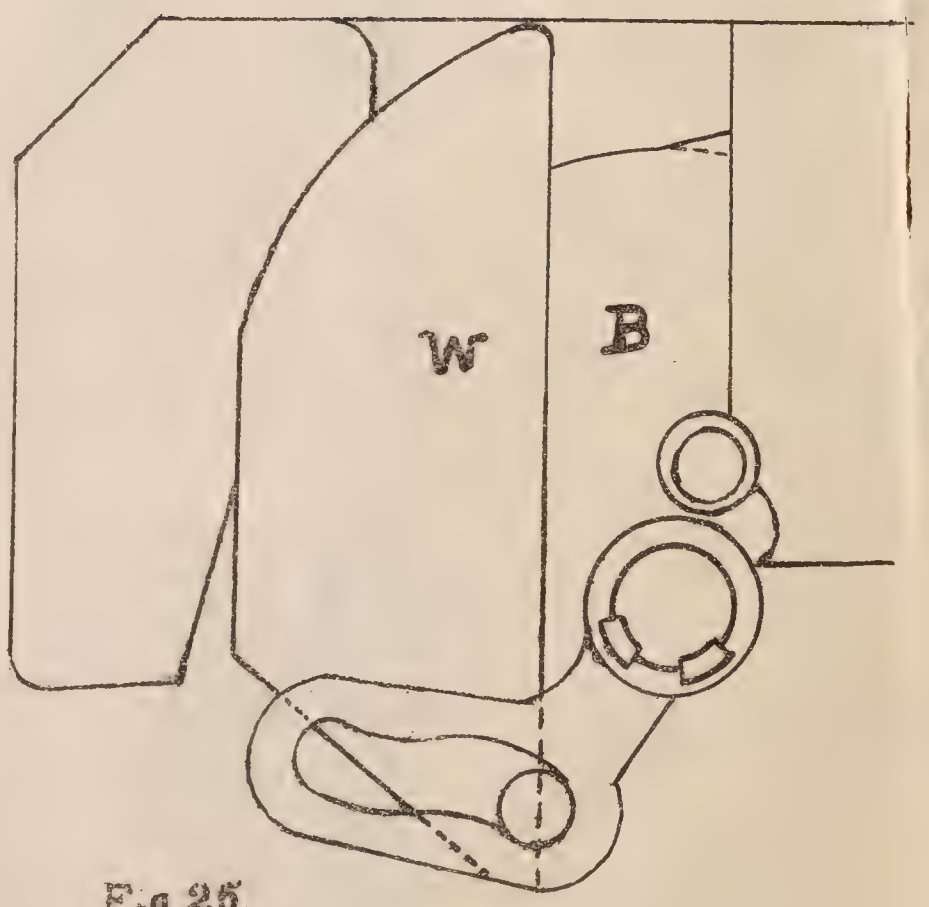


Fig. 29. READY FOR LOADING.

NORDENFELT R. F. GUN.



F.g. 25.
CLOSED

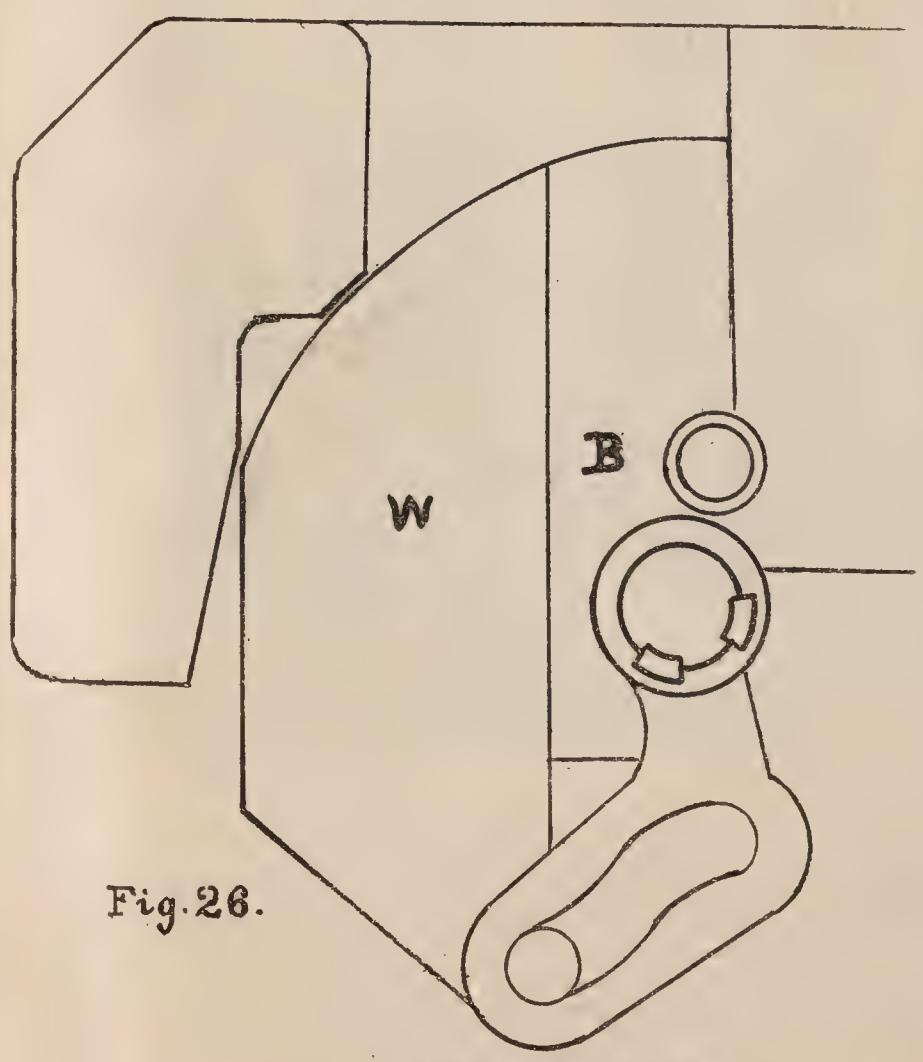


Fig. 26.
1st POSITION

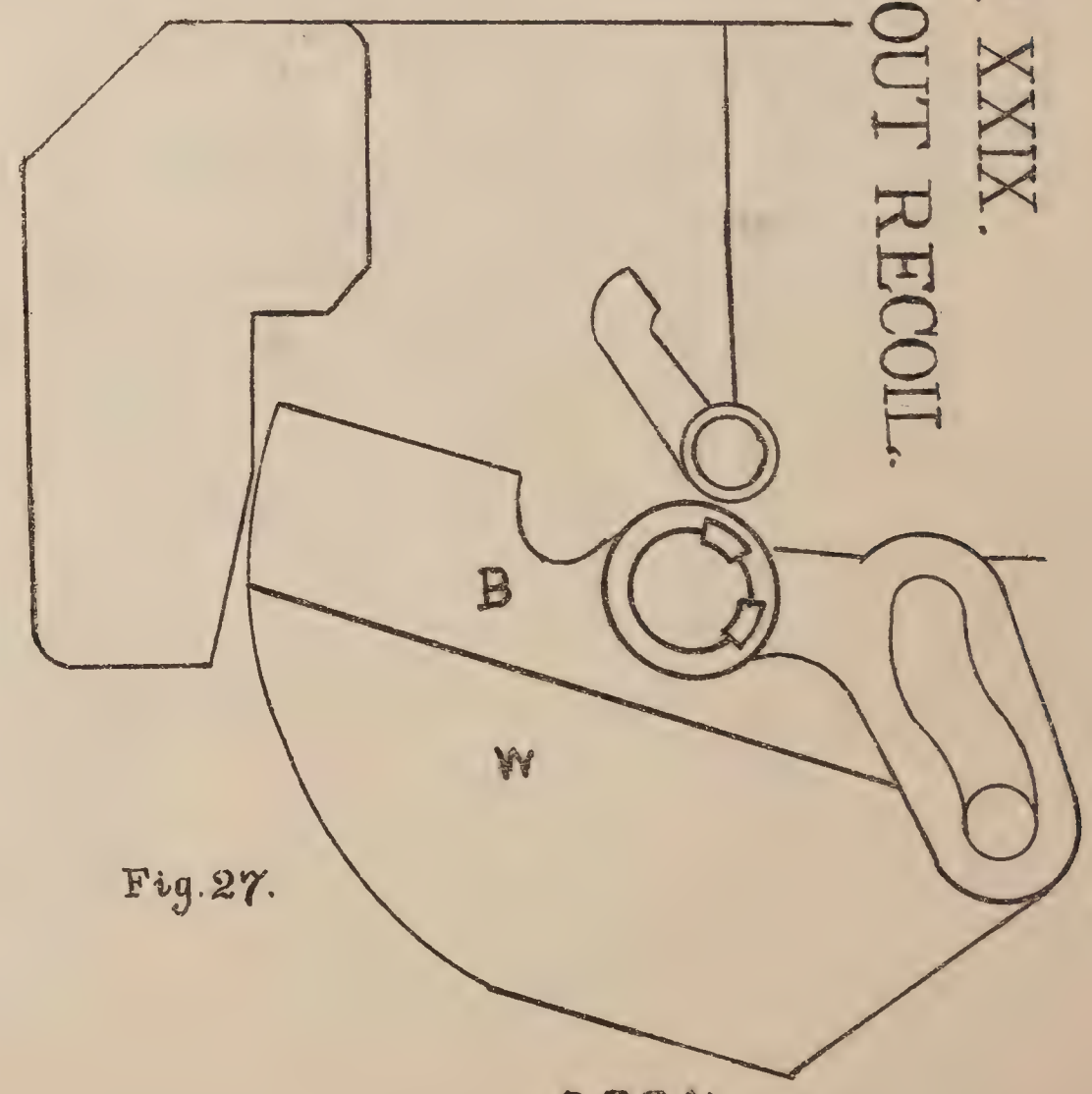
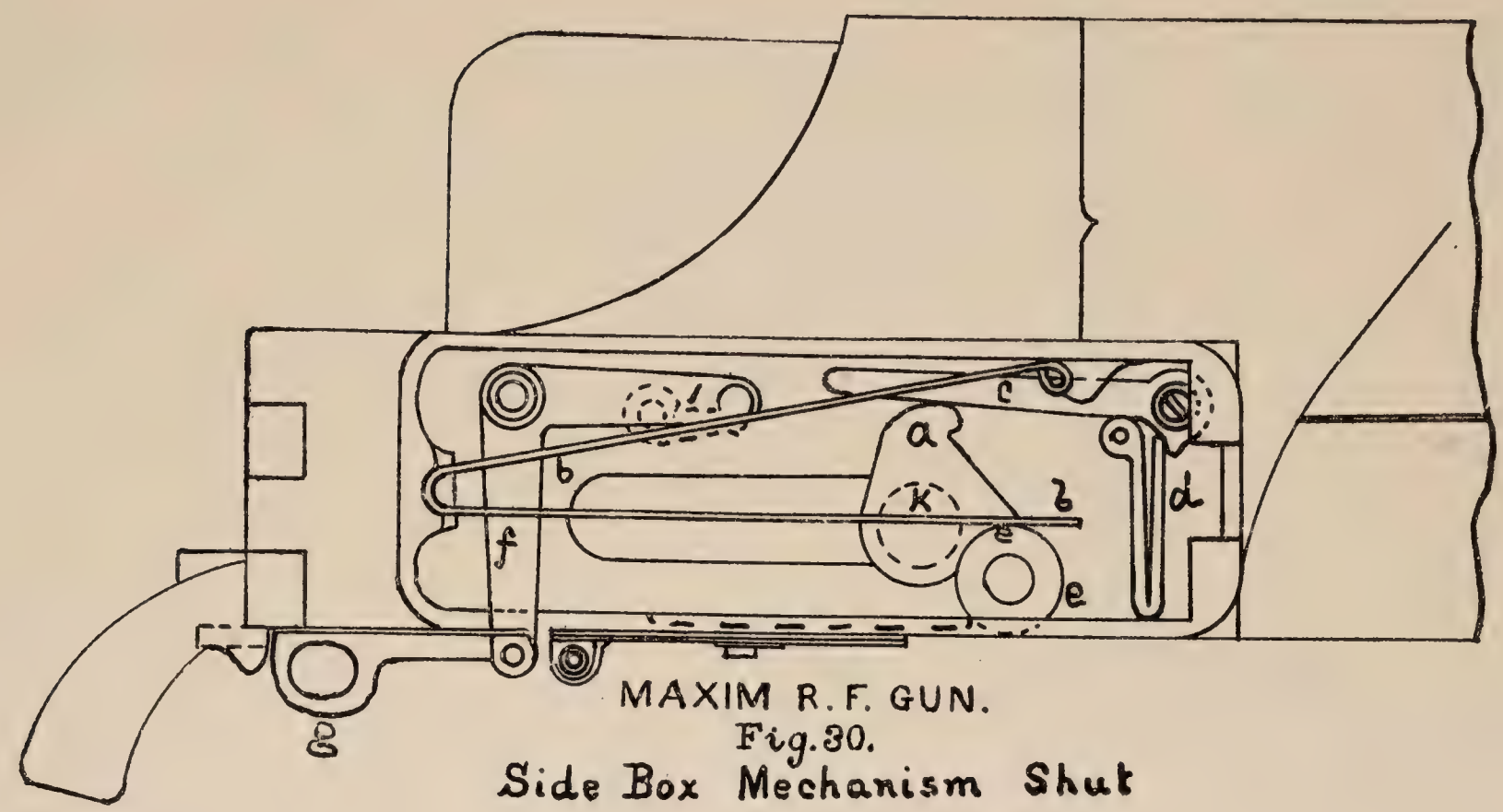
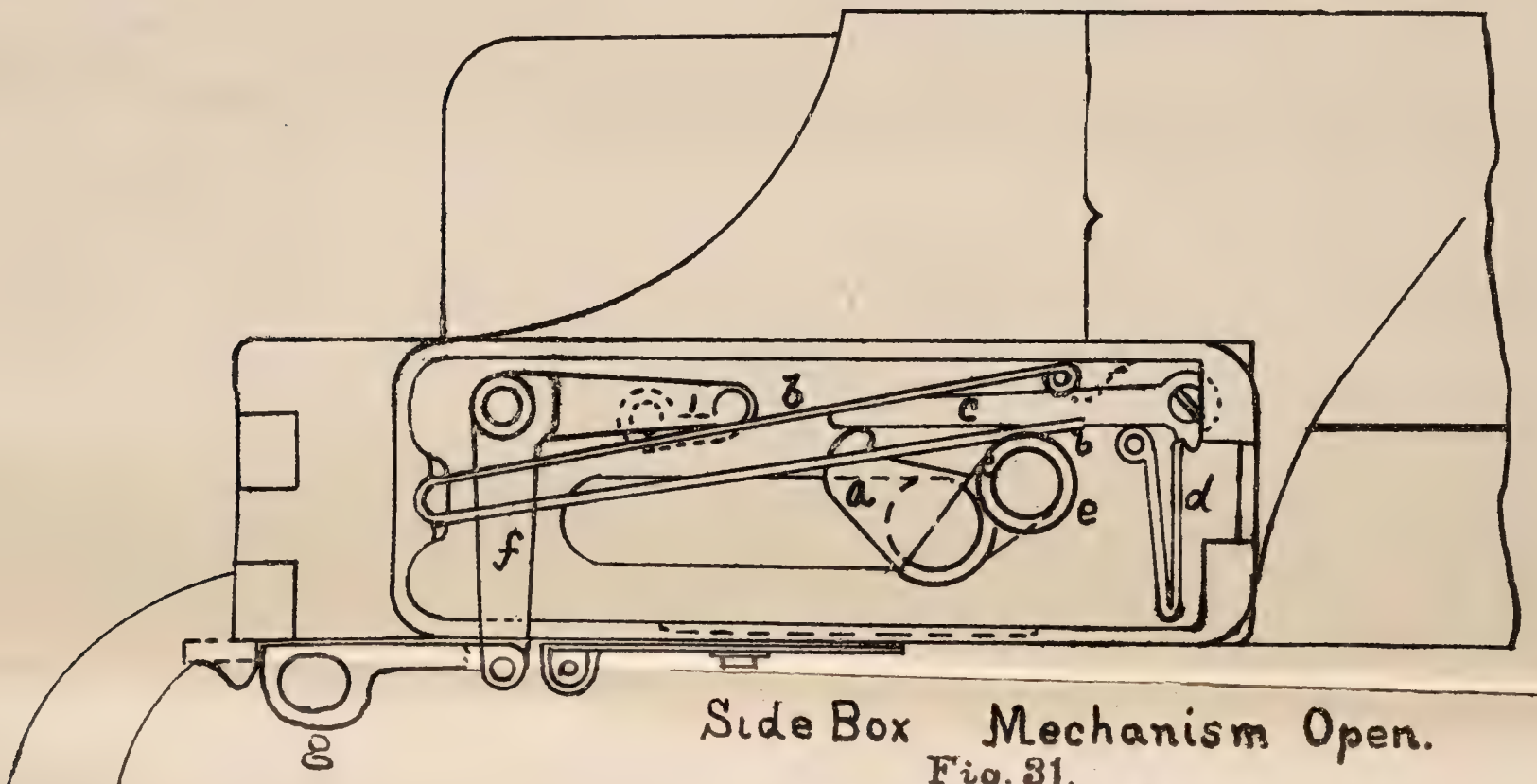


Fig. 27.
OPEN

CHAPTER XXIX.
CANNON WITHOUT RECOIL.



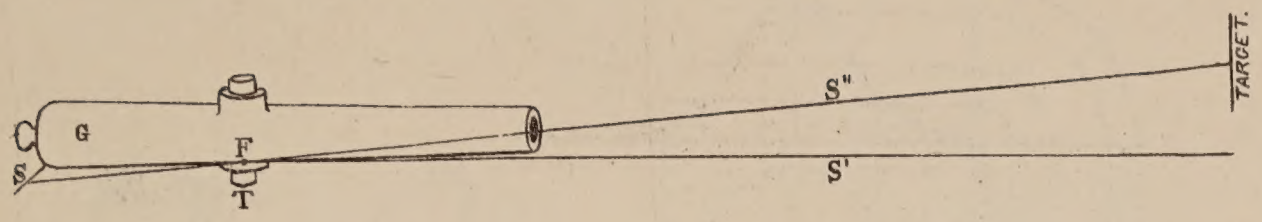
MAXIM R.F. GUN.
Fig. 30.
Side Box Mechanism Shut



Side Box Mechanism Open.
Fig. 31.
MAXIM R. F. GUN.

CHAPTER XXX.

ACCURACY.



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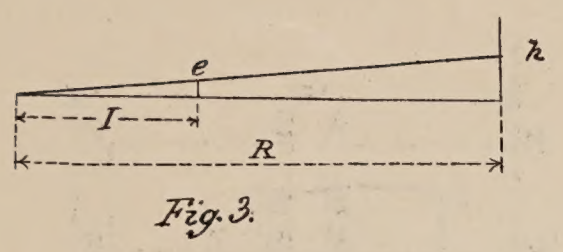

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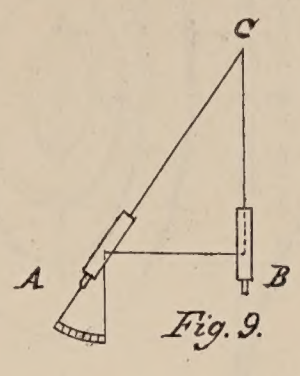

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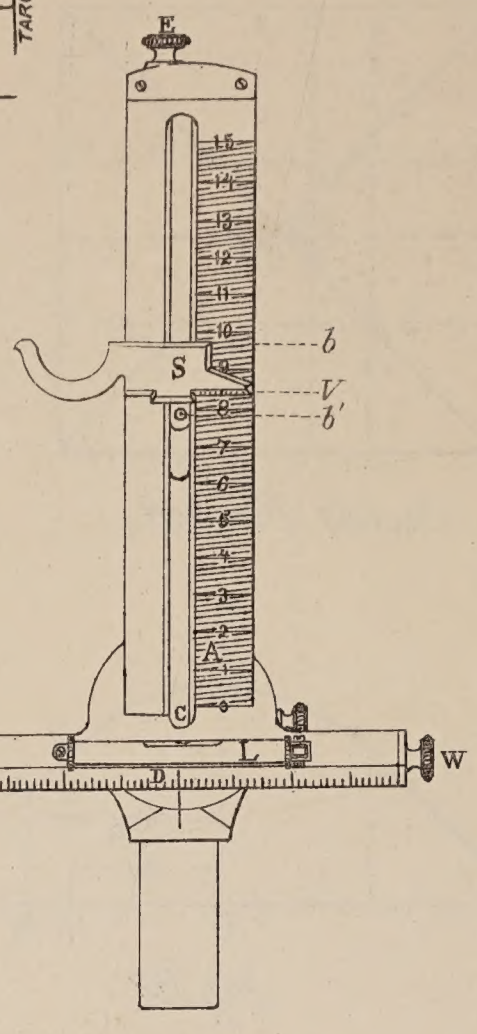


Fig. 2. Sight for 3.2" B.L.R.

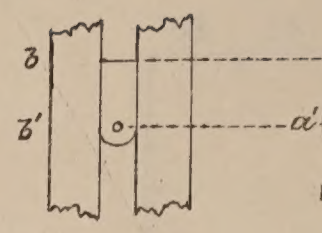
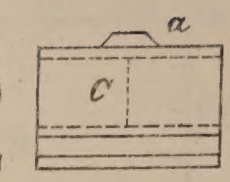


Fig. 2.



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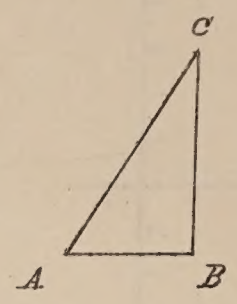

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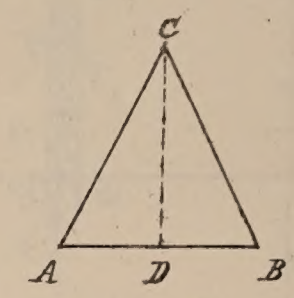

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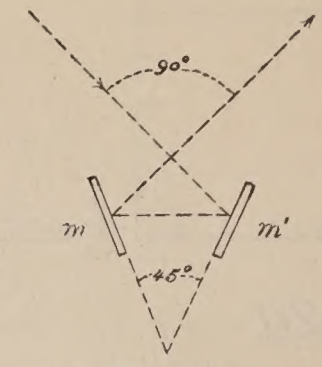

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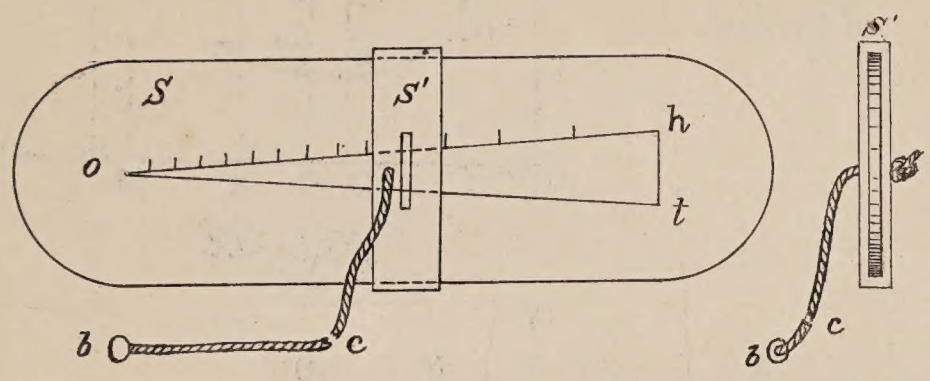
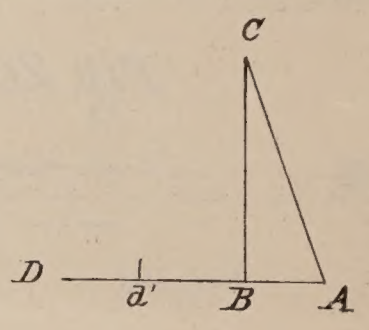


Fig. 8. Stadia.



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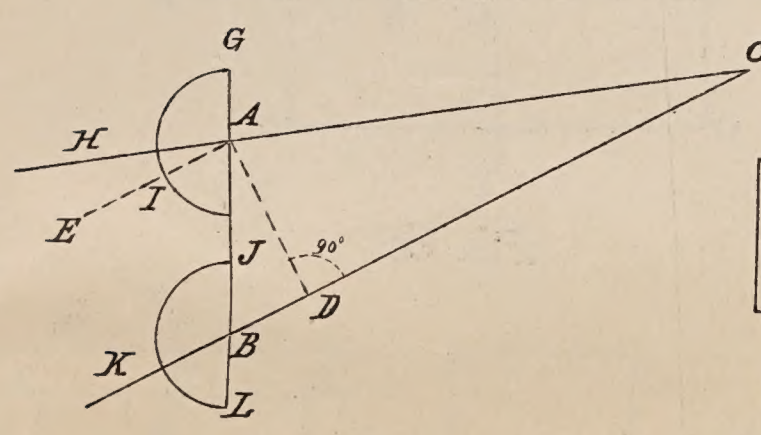
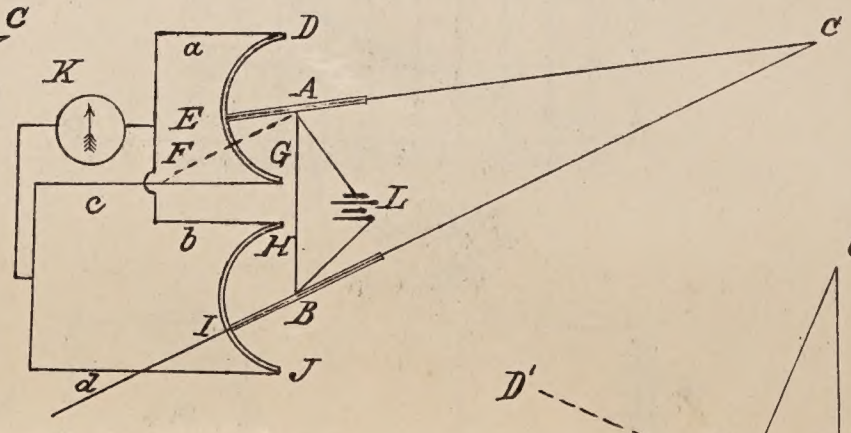


Fig. 10. Fiske.



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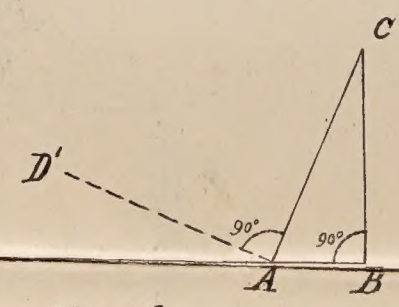

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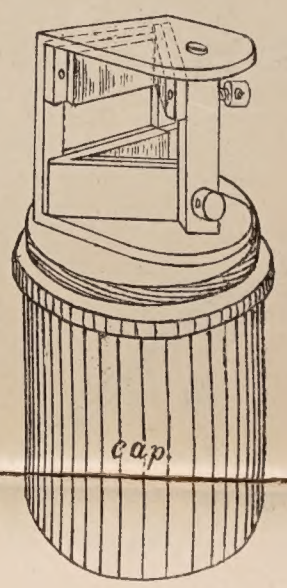
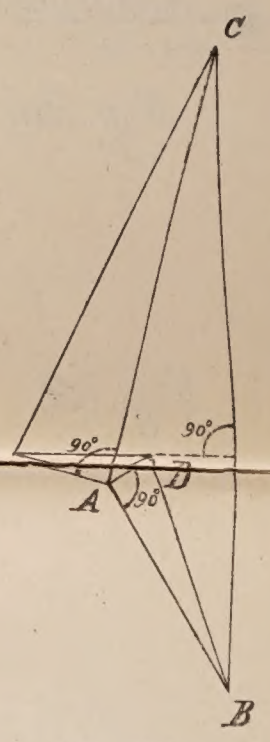


Fig. 12. Pratt.
(FULL SIZE.)



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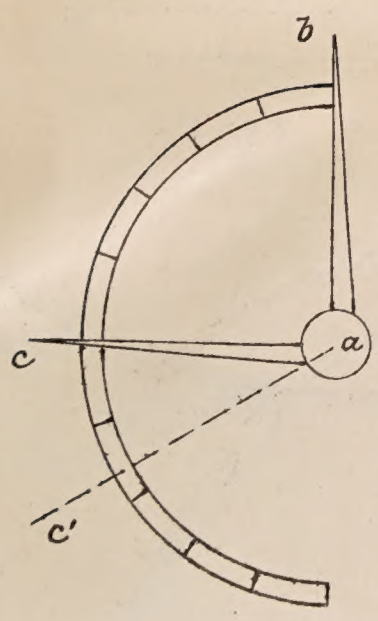

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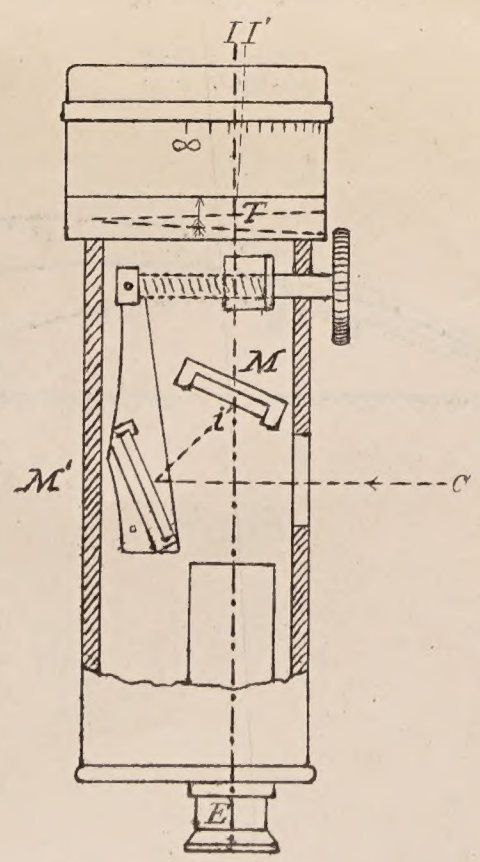


Fig. 17. Gautier.

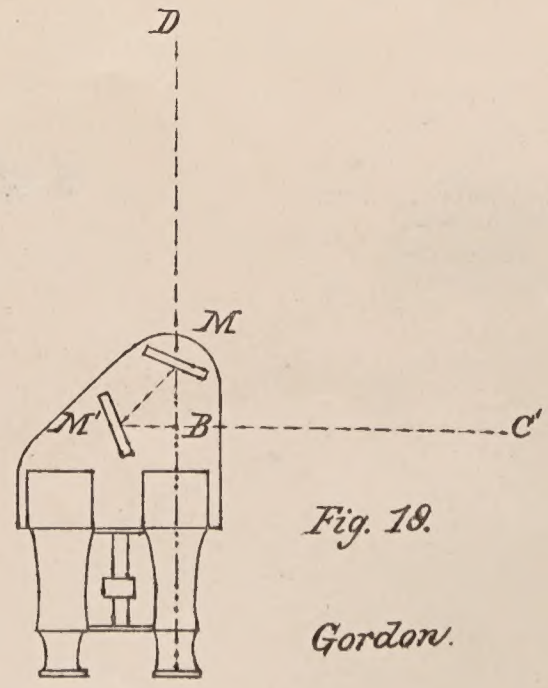


Fig. 18.

Gordon.

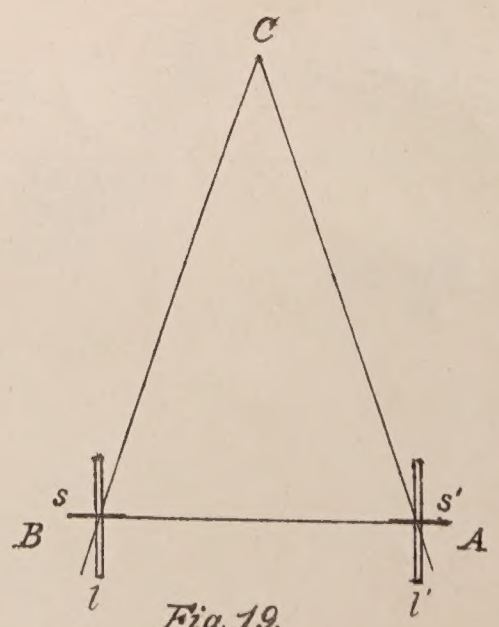
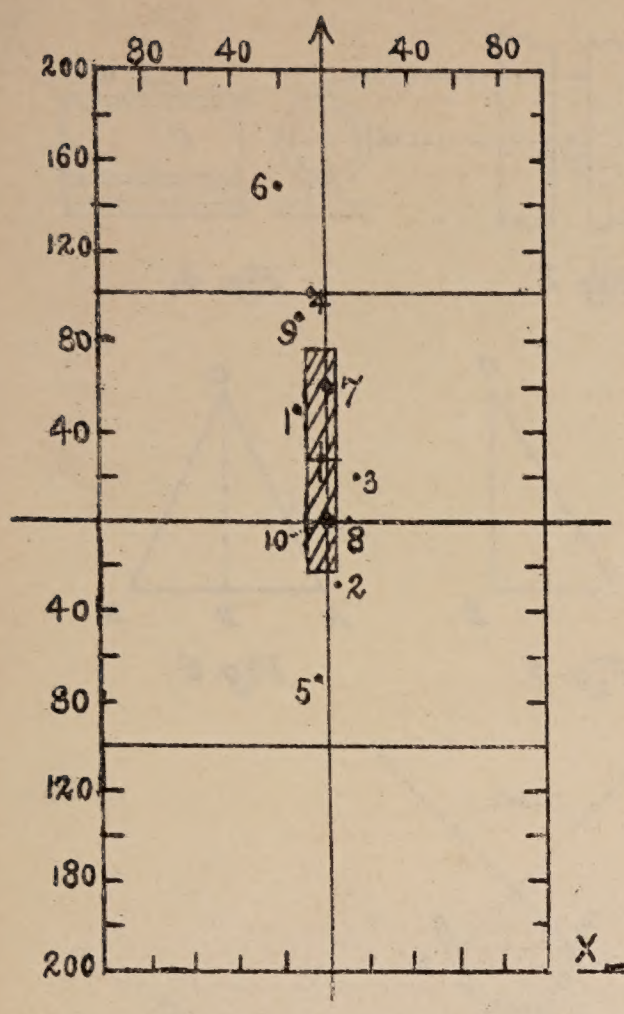


Fig. 19.
Nolan.

CHAPTER XXX.

ACCURACY.



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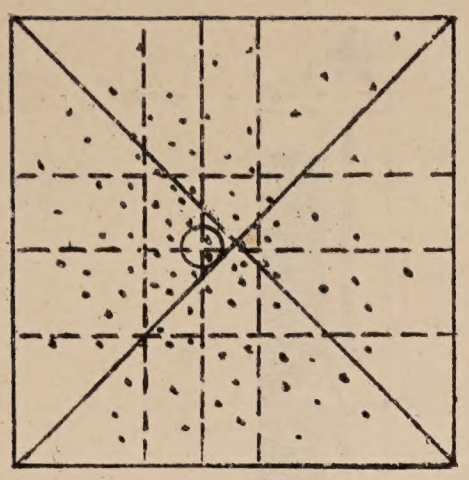
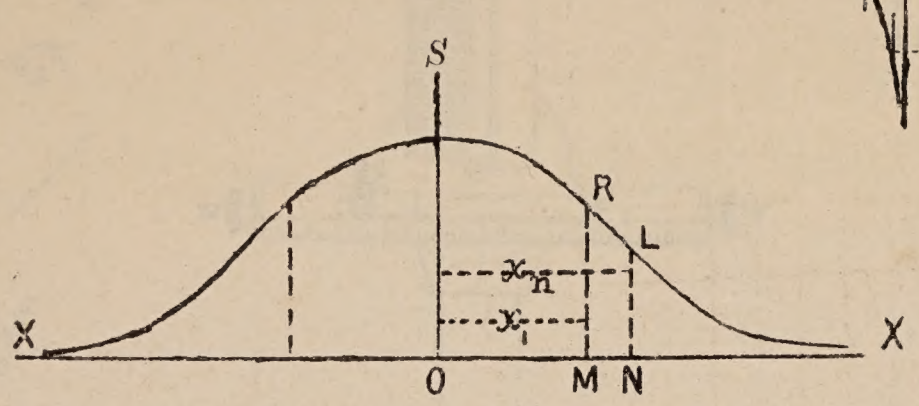


Swiss Method.



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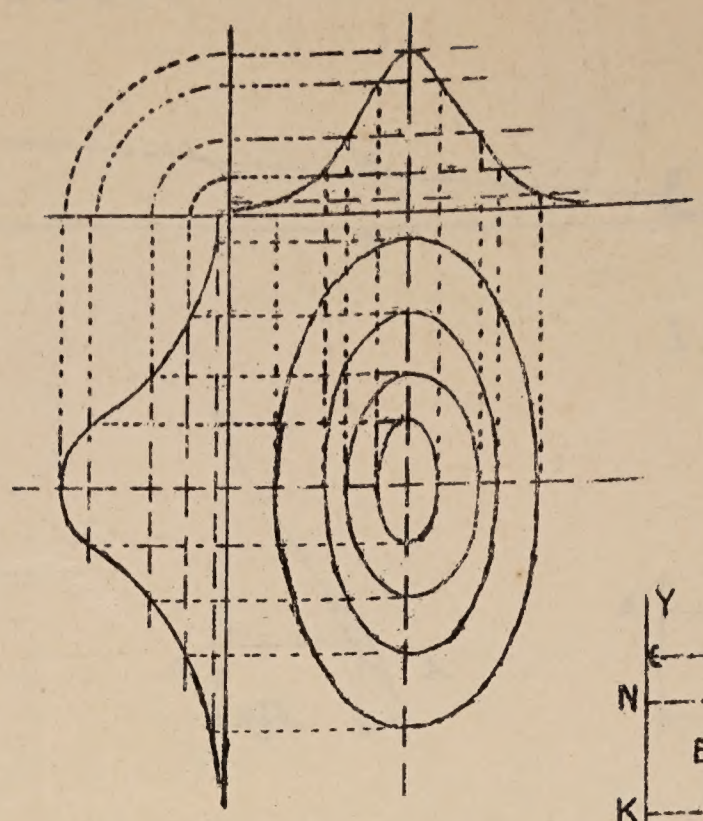

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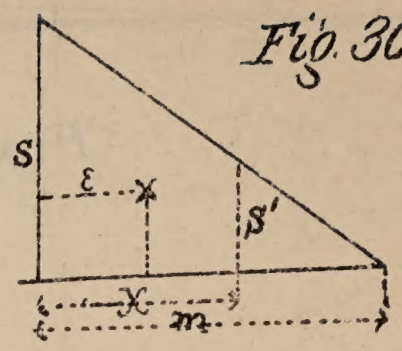

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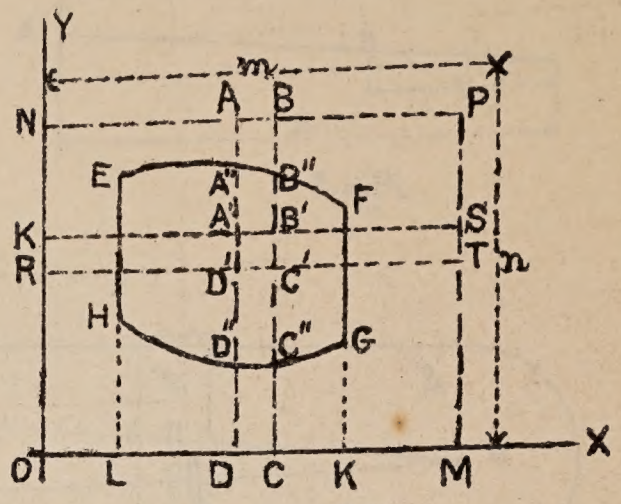

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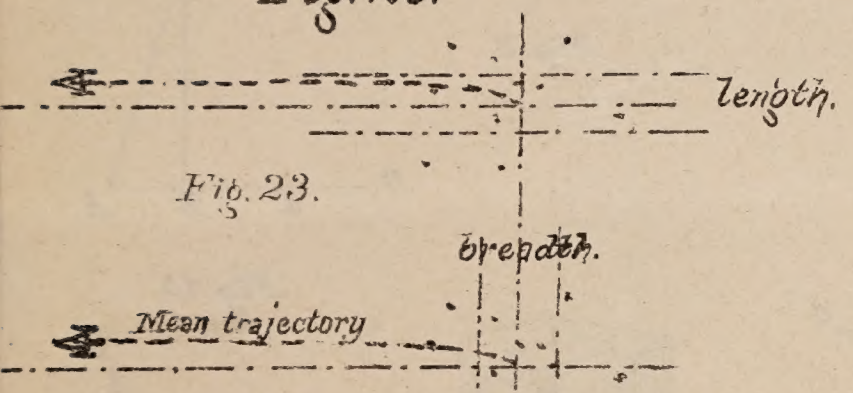


Fig. 23.

Fig. 24.

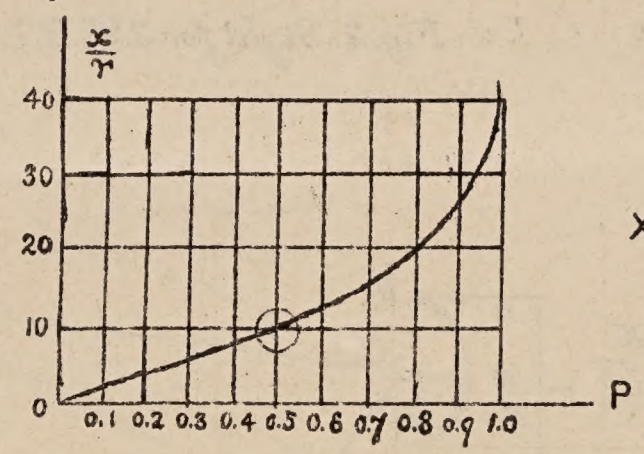


Fig. 25

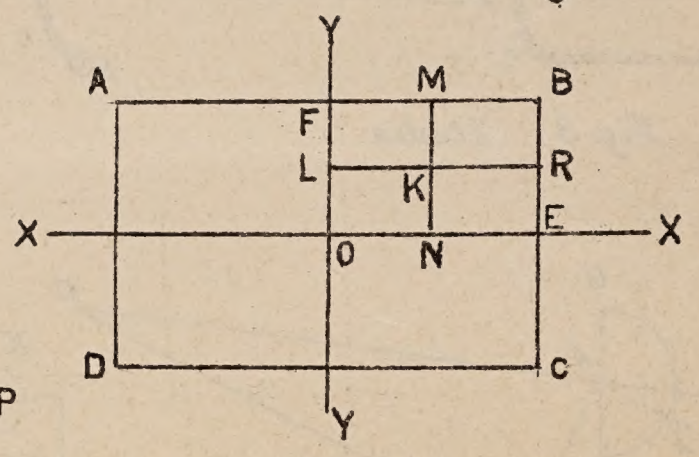
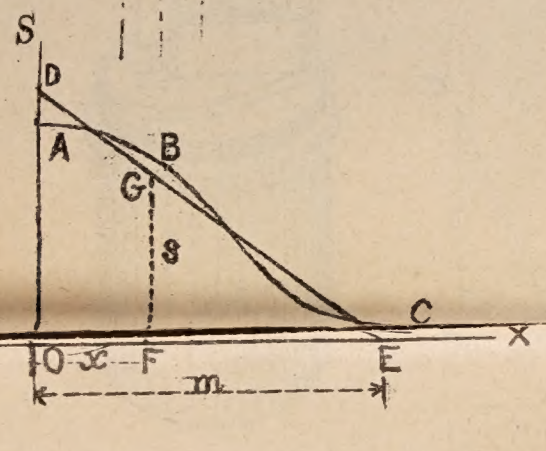


Fig. 26.

TABLE II.



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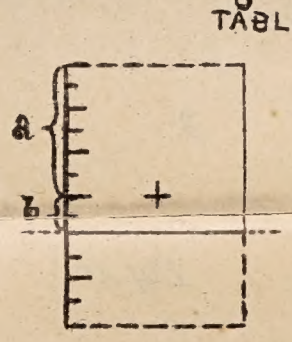

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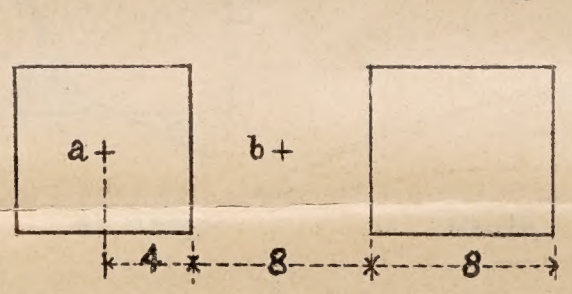

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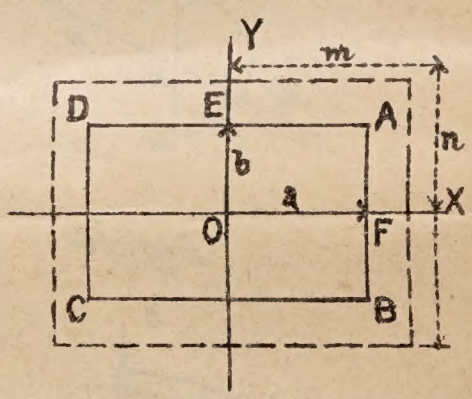

Fig. 31.

Fig. 33.

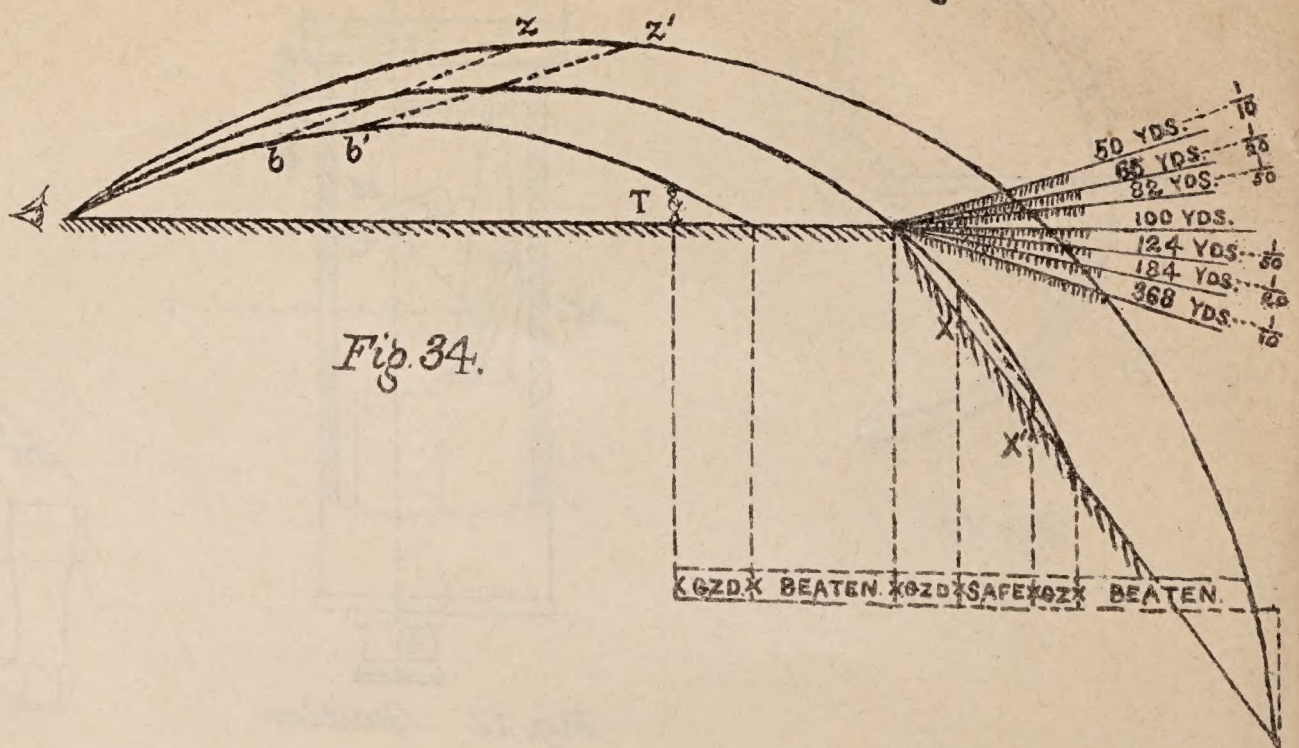

Fig. 34.

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